THE
physical therapy REVIEW

37th Annual Conference
American Physical Therapy Association
Penn-Sheraton Hotel Pittsburgh, Pennsylvania
June 26 — July 1, 1960

Safety: A Factor in Functional Training Phases of Physical Therapy—DERVITZ, CICENIA, and HOBERMAN

The Pursed-Lip Technic in Abdominal Breathing Exercises for Pulmonary Emphysema—EGLI

Physical Therapy Following Radical Mastectomy—NEEL

Pain Associated with Osteoarthritis
First Case History—KLINE
Second Case History—NORDQUIST
Third Case History—RATHJE

Communication with Non-English Speaking Patients:
III. Dutch-Flemish, Finnish, German—MINNIGH, HONKA and BERGHOLTZ

Case Reports—WAGNER

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Volume 40, Number 5 **May 1960**

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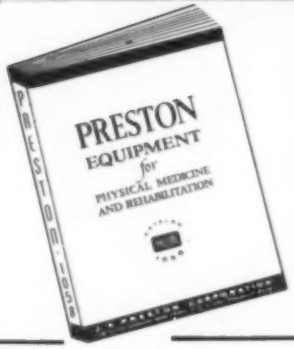

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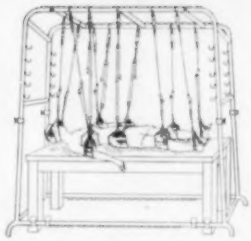

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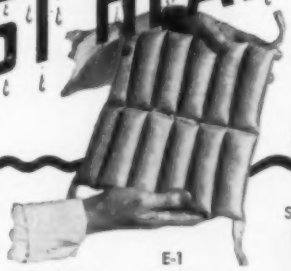

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May 16-21	American Association on Mental Deficiency, Lord Baltimore Hotel, Baltimore
May 30-June 2	Catholic Hospital Association, Municipal Auditorium, Milwaukee
June 9-10	American Geriatrics Society, Americana Hotel, Miami Beach
June 13-17	American Medical Association, Auditorium, Miami Beach
June 26-July 1	American Physical Therapy Association, Penn-Sheraton Hotel, Pittsburgh

International Meetings

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The *Physical Therapy Review* is published monthly by the American Physical Therapy Association, 1790 Broadway, New York 19, N.Y. Reentered as second class matter August 11, 1949 at the post office at New York, N. Y., under the act of Congress of Aug. 24, 1912.

Subscription rates: $7.00 per year to nonmembers: $8.00 in Canada and foreign countries.

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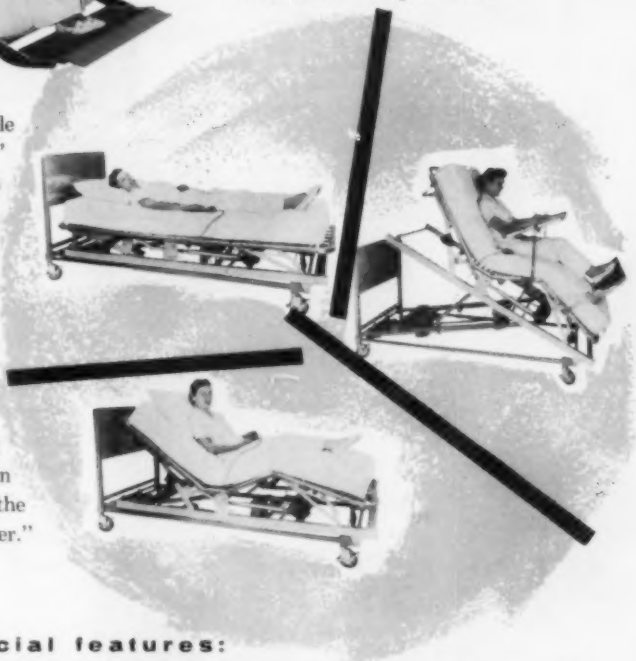

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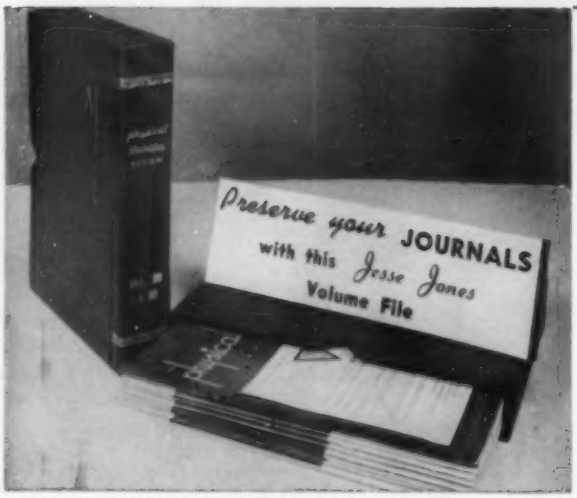

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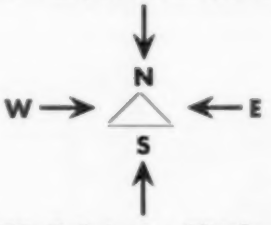

1960 Points to Pittsburgh

Booklets Received

About Hospitals

Price, 25¢; pages 15. Channing L. Bete Co., Inc., Greenfield, Mass., 1959.

This booklet, using the scriptographic technic, presents the role of the hospital in the community and its many services.

The Physically Handicapped Housewife

SVCK's Publication Series No. 6. Distributed by the International Society for the Welfare of Cripples, 701 First Ave., New York 17, N. Y., 1959.

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By Lawrence J. Linck, Parents' Series No. 4. Price, 25¢; pages 26. The National Society for Crippled Children and Adults, Inc., 2023 West Ogden Ave., Chicago 12.

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California*†: Apply to State Board of Medical Examiners, 1021 "O" St., Room A547, Sacramento 14 Examinations held in Los Angeles and San Francisco. SPECIFY REGISTRATION FORM

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Delaware*†: Apply to State Examining Board of Physical Therapists, 302 Waverly Rd., Wilmington 3.

Florida*†: Apply to Homer L. Pearson, M.D., Sec., State Board of Medical Examiners, 901 N.W. 17th St., Miami 36.

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Hawaii*†: Apply to Department of Health, P.O. Box 3378, Honolulu.

Illinois†: Annual examination, third Friday of October. File applications 15 days in advance. Apply to Judge Vera M. Binks, Director, Department of Registration and Education, Capitol Building, Springfield. Examinations held at 160 No. La Salle St., Chicago.

Indiana: Annual examination. Mid-June. File applications by May 15. Apply to Ruth V. Kirk, Exec. Sec., State Board of Medical Registration and Examination, 538 K. of P. Building, Indianapolis 4. Examinations held at Indiana University Medical School, 1100 W. Michigan, Indianapolis.

Kentucky†: Semiannual examinations, April and October. File application by March 1 or September 1. Apply to Agnes Shehan, Sec., State Board of Physical Therapy, Kentucky Crippled Children Commission, 982 Eastern Parkway, Louisville 17. Examinations held in Frankfort.

Maine: Thrice yearly examinations. Apply to Stephen A. Cobb, M.D., Sec. Medical Examining Board, 34 Winter St., Sanford. March and November examinations held at Portland City Hall, Portland; July examination held at State House, Representative Chambers, Augusta.

Maryland*: Apply to State Board of Physical Therapy Examiners, 301 W. Preston St., Baltimore 1.

Massachusetts†: Semiannual examinations, April and October. File application two weeks in advance. Apply to Board of Registration in Medicine, State House, Boston 33. Examinations held at State House, Boston.

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New Hampshire*†: Apply to Edward W. Colby, M.D., Sec., Board of Registration in Medicine, 61 So. Spring St., Concord. Examinations held at State Health Building, 61 So. Spring St., Concord.

New Mexico*: Apply to Registrar, Physical Therapists Licensing Board, Box 2206, Santa Fe.

New York: Semiannual examinations; June and December. File applications at least 30 days in advance. Graduates of registered curriculum apply to John W. Paige, Chief, Bureau of Professional Examinations and Registrations, 23 South Pearl St., Albany 7; graduates of nonregistered curriculum apply to Robert C. Killough, Jr., Assistant Commissioner for Professional Education, 23 So. Pearl St., Albany 7. Examinations are held in Syracuse and New York City.

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Ohio: Apply to: Herbert M. Platter, M.D., Exec. Sec., Ohio State Board of Medical Examiners, 21 W. Broad St., Columbus.

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Tennessee†: Annual examination, second Monday in June. File application one month in advance. Apply to Board of Medical Examiners, 1633 Exchange Bldg., Memphis. Examinations held in Nashville.

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Vermont*†: Apply to Sophie Myers, Sec., Board of Physical Therapy Registration, De Goesbriand Memorial Hospital, Burlington.

Virginia†: Semiannual examinations, February and September. Apply to State Board of Medical Examiners, 631 First St., S.W., Roanoke. Examinations held at Medical College of Virginia, Richmond.

Washington†: Annual examination, May. File applications by April 1. Apply to Professional Division, Department of Licenses, Olympia. Examinations held in Seattle.

Wisconsin*: Thrice yearly examinations, April, Mid-September and at the discretion of Examining Committee. File applications at least two weeks in advance. Apply to Emma Zitzer, Sec., Physical Therapy Examining Committee, 207 North Brooks St., Madison 5. April examination held in Milwaukee; September examination held in Madison.

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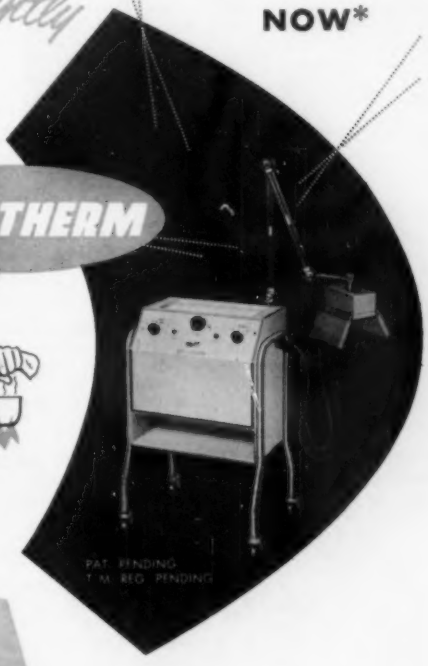

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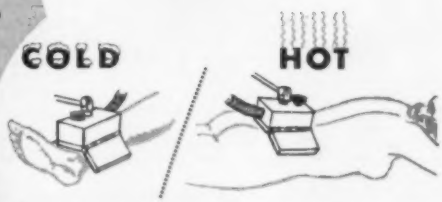

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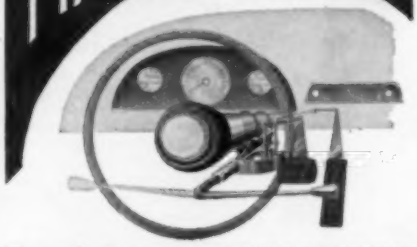

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The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Safety: A Factor in Functional Training Phases of Physical Therapy

Hyman L. Dervitz, M.A., Erbert F. Cicenia, Ed.D. and Morton Hoberman, M.D.

Introduction

Safety has been defined as the art of cultivating the knowledge, skills, and attitudes that make for avoidance of accidents. Safety is gradually being accorded an important place in teacher-preparation programs in this country. In functional training of the disabled patient a therapist must perform stooping, lifting, and carrying movements as well as "guarding," that is, anticipating and preventing falls. The therapist needs instruction that will safeguard both the patient and himself. The purpose of this article is to provide information about safety and safety education as it applies to functional training.

A basic skill in teaching functional activities is the maintenance of adequate stability *(proper body balance)* under all circumstances. The factors of stability which will enable the patient and the therapist to achieve balance are as follows: 1) center of gravity, 2) base of support, 3) line of gravity, 4) weight.

Center of gravity: The center of gravity of an irregular object (such as a human body or a piece of equipment) may be defined as the point at which the mass of the object is centered. According to Hellebrandt and Franseen, the center of gravity in the normal human is at 55 per cent of the height in the standing position, just anterior to the upper part of the sacrum.

Base of support: The manner in which an object is supported with respect to its center of gravity has a great effect on the stability of the object. In general, the broader the base and the lower the center of gravity, the greater the stability of the object.

Line of gravity: The line of gravity is a vertical extension from the center of gravity to the base of support. In general, the closer the line of gravity is toward the center of the base of support, the greater is the stability of the object. Conversely, the farther the line of gravity is away from the center of the base of support, the greater is the instability of the object.

Weight: Displacement of mass (movement) results in a shift of the center of gravity, and hence the relationship between the line of gravity and the base of support is disturbed. This is usually counteracted by muscular activity which attempts to reestablish the center of gravity within the base of support. Displacement of mass may be intrinsic (movement of the object itself) or extrinsic (the addition of a weight to the object).

A proper appreciation and application of these basic principles will not only permit stability for the patient and therapist but will conserve their energies during activities by reducing unnecessary muscular effort.

From the Rehabilitation Section, New York State Rehabilitation Hospital, West Haverstraw, New York.
Mr. Dervitz is Acting Director of the Rehabilitation Section; Mr. Cicencia, formerly Director of the Rehabilitation Section is Assistant Superintendent, Edward R. Johnstone Training and Research Center, Bordentown, New Jersey; Dr. Hoberman is Chief, Rehabilitation and Research Services, New York State Rehabilitation Hospital.

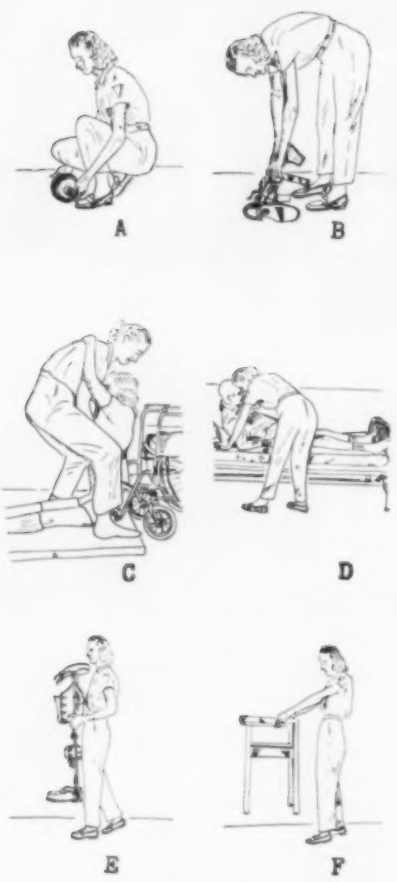

Figure 1.

Safety technics may be said to include: first, those which safeguard the therapist; and second, those active, protective technics which the therapist employs to safeguard the patient.

SAFEGUARDING THE THERAPIST

Safeguarding the therapist involves the application of the principles of protective body mechanics to the technics of stooping, lifting, carrying, pushing, pulling, and reaching activities of the therapist. These fundamental movements underlie the activities used in daily work and in teaching functional training. The therapist must be able to correctly perform these movements just as a tumbler must know how to break a fall. The technics of these movements will be discussed in the hope that correct performance will be automatic when guarding and handling patients or when handling equipment. The correct performance of these movements can be pursued endlessly; this presentation will not allow an elaborate analysis and discussion of each technic. A few established and accepted technics for the effective use of the body will be enumerated and will be integrated in the teaching of functional training. A kinesiology or body mechanics textbook will give details of the movements. For further information a therapist may turn to the professional literature.

MECHANICS OF STOOPING, LIFTING, AND CARRYING

One of the most prevalent injuries occurring among therapists who teach functional training is back strain due to faulty lifting. Because stooping, lifting, and carrying are so closely related, they will be combined and described as one task, namely, a safe lifting method.

A. Safe Lifting Method

Stooping: (Fig. 1A) 1. Stand close to the object to be contacted. 2. Place the feet apart laterally and anteroposteriorly so that a base broad enough for the task to be performed is assumed. 3. Lower the body by flexion at the hips and knees, maintaining the trunk in good alinement or inclined slightly forward from the hip joint, thus bringing the hands down to the object. Do not bend over from the waistline and reach down for the object with an extended arm reach, thus keeping the knees straight and the hips higher than the shoulders. (Fig. 1B and D)

Lifting: (Fig. 1C) 4. Grasp the object firmly and as near its center as possible. 5. Get set for the load. 6. Lift by pushing with the lower extremities, straightening the ankle, knee and hip joints to the upright position, keeping the load as close to the body as possible during the lift. *Do not twist the body.* If a change of direction is necessary turn the body with changes of foot position.

Carrying: (Fig. 1E and F) 1. Keep back as straight as possible. 2. Keep the load close to the body and centered as much as possible over the pelvis. 3. Counterbalance the load by shifting a portion of the body (usually an arm or the upper trunk) in the direction opposite to the instability as much as is necessary to bring the body and the load into balance. Set the object down by flexing the hips and knees with a straight back and keeping the load close to the body, thus lowering the load with the leg muscles.

When two or more are carrying a load, teamwork is required. If one worker lifts too soon or shifts the load, or lowers it improperly, either he or his partner may be overloaded and strained. One person should give orders to assure the necessary coordination.

MECHANICS OF PUSHING, PULLING, AND REACHING

The necessity for pushing, pulling, and reaching movements seldom occurs. However, situations arise where equipment has to be positioned, or a wheel chair and its occupant must be taken up and down stairs unassisted.

A. *Safe pushing methods* (Fig. 2A and B)

1. Stand close to the object to be moved.
2. Crouch down to the object with feet apart.
3. With the elbows flexed place the hands on the object at chest level.
4. Lean forward with chest or shoulder against the object.
5. With the back as straight as possible use the legs to push the object in the direction it is to be moved. Do not push with the arms and shoulders.
6. Use crouching strides pushing the object forward with the legs doing most of the work.

B. *Safe pulling methods* (Fig. 2C and D)

1. Place the feet apart close to the object to be moved but allowing enough room for the object to be moved without danger to the forward foot.
2. Grasp the object firmly as near its center of gravity as possible.
3. Crouch down and lean away from the object counterbalancing the body weight with the resistance of the load.
4. With the back straight, pull by extending the legs.
5. Walk backward with crouching strides thereby pulling so that the legs are doing most of the work.

C. *Mechanics of reaching* (Fig. 2E and F)

To place or remove an object on or from a high shelf, or to make an adjustment to apparatus which requires reaching, the following principles should be applied:

1. Use a footstool whenever possible.
2. Stand close enough to the object to keep the center of gravity centered over the base of support.
3. Place the feet wide apart anteroposteriorly to permit free movement forward and backward as the arms are raised and lowered.
4. Maintain good body alinement. Do not reach outward to the point of straining; move closer to the object.

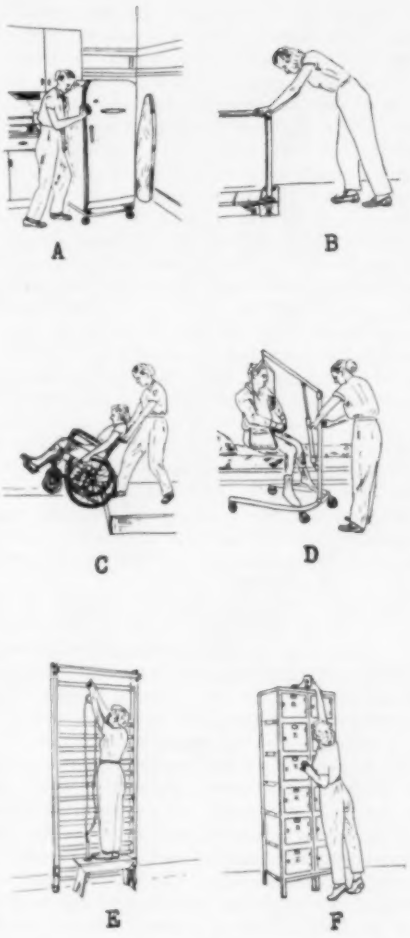

Figure 2.

SAFEGUARDING THE PATIENT

A rule of thumb in safeguarding the patient during functional training instruction is that a progressive approach should be used whereby skills are taught in order of their difficulty. A complex activity should be analyzed in terms of

its components of strength, balance, coordination, and endurance. Before a patient progresses to the use of a swing-through gait, for example, he should have mastered those preliminary movements so that he possesses not only the required strength but the coordination and timing necessary to this most difficult gait. In working with children repetition in the form of drills is most important to the development of coordination, endurance, and desired patterns of movement. It follows that a second rule of thumb should be the installation of precautionary measures to be used at all times. A therapist should analyze each daily activity skill for elements of danger before trying to teach it. He should consider all the guarding technics for an activity and decide on the most efficient. Also, preventive measures should be heeded when apparatus and equipment are used. Before beginning, a therapist should always check the patient's appliances and the functional training equipment. At the New York State Rehabilitation Hospital, patients receive instruction in brace care and wheel chair maintenance so that the patients themselves will anticipate imminent breakdowns before they occur, thus averting a serious mishap.

Successful guarding methods should be the concern of the therapist as well as the patient, since "guarding" in the final analysis, is simply a matter of handling and controlling weights. The same principles that govern proper lifting procedures and other protective body mechanics apply to all forms of guarding. This is recognized and employed by tumblers and gymnasts who must guard or assist one another during the performance of a stunt and cannot risk strains and sprains to either themselves or to the other performers. For example, in companion stunts a partner is almost always lifted or assisted with the more powerful leg muscles and not with the back or arms. When a gymnast lifts or catches a partner he tries to get under the performer with his back straight and his head up. If a performer is falling completely out of control a good "spotter," or safety man, will try to catch the main body mass instead of grabbing for the arms or legs. The person guarding keeps as close to his man as possible and is always near enough to anticipate and prevent falls. Tumblers rarely ever guard at arm's length or carry a partner directly in front of the body.

The foregoing explains how a therapist can guard or assist a patient without undue strain or effort. However, guarding technics become useful only when they help the patient. The following material shows the active, protective, guarding technics which can help patients during functional activity and which can help to insure against accidents during learning. Before examining the specific guarding technics which experience has shown to be effective, certain basic principles of correct guarding are discussed.

BASIC PRINCIPLES OF GUARDING

1. *It is extremely important that guarding be used when teaching a new or different exercise or activity.* A fall or other mishap occurring in the early stages of learning a new technic may discourage a patient from learning a skill.

2. *Guarding technics should be so applied that the patient will have absolute confidence in his therapist.* Do not misunderstand; confidence but not dependency is highly desirable. Although the patient should feel confident that his therapist will be ready and able to help at any time during the performance of an activity the patient should be gradually required to rely upon himself.

3. *Confidence is accomplished by giving the patient the feeling of doing the activity himself.* To be successful in this a therapist should know the correct place to stand, the correct place to grasp, and the correct time to assist.

4. *Use a strong belt about the patient's waist (usually referred to as a "safety belt").* A belt should be employed, although there is no need for a specially constructed belt. Any strong leather belt with a prong buckle instead of a slip buckle gives the therapist a firm hold.

A. *Mat work* (Fig. 3A and B)

1. Guarding on one knee.

Patient: Performing mat exercises without apparatus.

Therapist: At the side of the patient and guarding on one knee.

Instructions to therapist:

a) The knee nearest the patient should be on the mat thus enabling the therapist to move with the patient in case he loses his balance and begins to fall.

b) Support the patient at the shoulder with one hand and use the other hand to steady the hips. In this way the patient's forward, backward, or lateral movements can be controlled.

c) Whenever possible the stronger arm of the therapist should be toward the greatest danger. There is a proper side from which to guard certain mat exercises and drills. Know the patient as well as the exercises. Become familiar with danger elements of each exercise and drill.

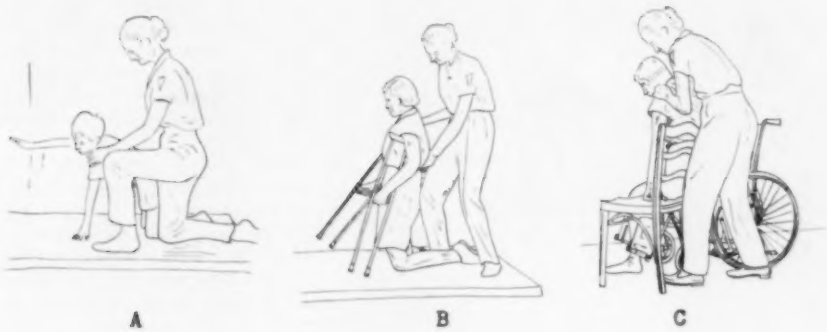

Figure 3.

d) Stay close to the patient. Guarding at arm's length cannot be effective. The further the patient gets away from the therapist, the harder the therapist will have to fight the forces of gravity to restore the patient's balance.

e) Keep the back as straight as possible with the trunk inclined forward slightly from the waist. If this precaution is heeded, mat work will be less tiring.

2. Guarding in crouch stance

Patient: Performing mat exercises with apparatus.

Therapist: Behind the patient and in the crouch stance.

Instructions to therapist:

a) It may be easier to assist the patient in some mat exercises and drills from a crouched or semicrouched position. When this is done, a broad base of support should be used. The therapist can move with the patient and still maintain an adequate base in event the patient goes too far off balance forward or backward.

b) Place hand on the patient's shoulder and the other on the safety belt in a position of readiness to push the hips forward and pull the shoulders back in order to restore the patient's point of balance in the event of "jacking" or "jack-knifing."

c) The thigh of the advanced leg can be used as a lever in forcing the patient's hips forward if "jacking" occurs.

d) The back should be kept as straight as possible and the trunk inclined slightly forward from the waist. When lifting use the more powerful leg muscles instead of the back muscles.

B. *Wheel chair activities* (Fig. 3C)

1. Basic method.

Patient: Performing wheel chair transfer from wheel chair to straight chair and return.

Therapist: Guarding is a semicrouch stance.

Instructions to therapist:

a) After one has learned to guard in the crouch stance it should be comparatively easy to apply this technic to other activities. Stand with the feet in a broad, comfortable base of support and as close to the patient as possible.

b) Use the feet to brace either the wheel chair or straight chair. The patient can concentrate on the important fundamental of hip walking, or lifting the body weight from one object to another, without fear of the chairs sliding or rolling.

a) Assist the patient over the gap between the two chairs by lifting at the hips with both hands, or lifting at the hips with one hand and assisting at the shoulders with the other hand. In any event, lift with the legs instead of the back. Keep as close to the patient as possible. Step in the direction the patient moves, to prevent outward reaching movements.

C. *Crutch balancing* (Fig. 4A and B)

1. Fore and aft method

Patient: Performing crutch balancing drills.

Figure 4.

Therapist: Guarding in a semicrouch position at the front or at the rear of the patient.
Instructions to therapist:

a) Stand either in the front of the patient or behind him according to preference. Some who teach functional training are of the opinion that it is better to guard from behind a patient. Their contention is that a patient becomes too dependent upon a therapist when he stands in front. Those who prefer to guard a patient from the front assert that they can recognize fear and hesitation more easily by watching the patient's facial expressions. They believe, too, that when the patient, as a beginner, sees a therapist in front of him, the attention of the patient is away from the dangers of the exercise or activity. The patient has only to think of the fundamentals for proper execution. Fear causes tension and distracts attention from the task to be performed. Regardless of which location is preferred, the stance and the principles involved are essentially the same.

b) Use a broad base of support. Standing with one leg in advance of the other allows the therapist to rock the body weight forward and backward depending upon the movements of the patient, keeping the center of gravity and the line of gravity within the base of support.

c) Stand as close as possible to the patient without impeding any of his movements.

d) Be ready to help the patient at any time during the activity. Place one hand on the patient's shoulder and the other hand on the safety belt so as to control the patient's movements. When in front of the patient the therapist is in readiness to pull the hips forward and to push the shoulders back; or when to the rear, the therapist is in a position to push the hips forward and to pull the shoulders back in order to restore the patient's balance.

D. *Ambulation activities*

1. Moving with the patient's feet (Fig. 4C and D)
Patient: Performing four point gait with braces and crutches.
Therapist: Guarding behind the patient.
Instructions to therapist:

a) Stand in a semicrouch position with the feet in a "walk-stand," one foot advanced as in boxing position.

b) Foot movements should be synchronized with the patient's foot movements; for example, when the patient advances the right crutch and left foot, the therapist advances the left foot keeping close to the patient at all times. Avoid reaching and never let the patient get too far away. Observance of this simple rule will reduce muscle tension and fatigue and generally conserves the therapist's energy during gait training.

2. Moving with the gait pattern (Fig. 5A, B, and C)
Patient: Performing a swing gait with braces and crutches, for example, the swing-through gait.
Therapist: Guarding behind the patient.
Instructions to therapist:

a) The patient should not try the swing-through gait until after preliminary training. It is necessary to assist the

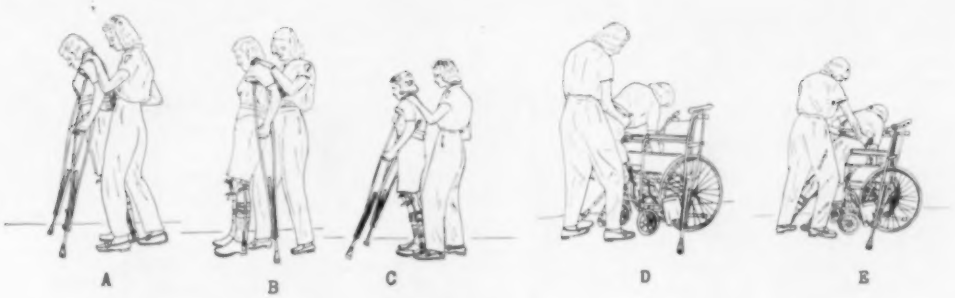

Figure 5.

beginner through the gait many times and gradually reduce the physical assistance. At first, guarding is very much a matter of lifting with all safety rules heeded. Lift with the leg muscles, not with the arms or back.

b) Keep close to the patient so as to anticipate and prevent falls. Avoid reaching as a sudden mishap may strain the therapist's back while he is attempting to break the fall or restore the patient's balance.

c) Stand behind the patient and slightly to one side so as to assist or follow the patient without interfering with his movements.

d) As the patient travels, synchronize movements with the gait pattern, advancing the outside leg with the crutches and the inside leg with the patient's feet. The thigh of the inside leg can be an effective lever in forcing the patient's hips forward if "jacking" occurs.

e) Place one hand on the patient's shoulder and the other hand on the guarding belt so as to be ready to push the patient's hips forward and pull his shoulders back. As the patient swings through, assist by lifting the patient at the hips and controlling the shoulders, giving the patient the feeling of arching his back.

E. *Teaching functional activities—basic methods* (Fig. 5D and E)

1. For sitting activities

Patient: Sitting down and getting up to erect position with braces and crutches, for example, from wheel chair to crutches and return.

Therapist: Guarding in semicrouch stance.

Instructions to therapist:

a) Protect the patient in the same way as for wheel chair transfer.

b) Stand to the rear of the patient and slightly to one side so as not to interfere with the motions of the patient. Assume and maintain a semicrouch position with a broad base of support, the feet in a walk-stand position. Be careful to keep the center of gravity within the base of support.

c) Use feet to brace the patient's feet. The patient need never worry about his feet slipping when they are supported in this manner.

d) Place hands on each side of the patient's hips grasping the guarding belt. During rising, guide or lift the patient's hips around and upward until balance is established.

e) Steady the patient's hips as he reaches for the crutches and assumes the crutch stance. One hand can be placed at the patient's shoulder and the other hand on the hips in order to lift the patient's shoulders backward and to push his hips forward while the patient comes to the erect position. In such an instance, the thigh of the advanced leg can be an effective lever.

2. For stairs with handrail (Fig. 6A, B, C, and D)

Patient: Performing stair climbing with handrail.

Therapist: Guarding on the stairs at the side of the patient.

Instructions to therapist:

a) Stand either at the side, in the front, or to the rear of the patient depend-

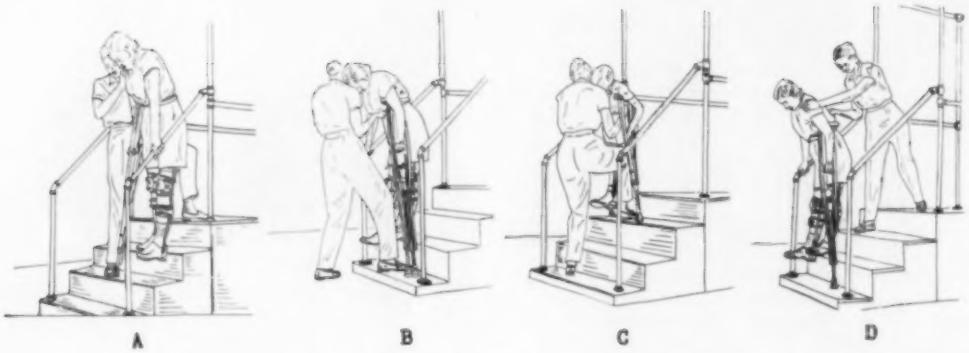

Figure 6.

ing upon the method of stair climbing employed (e.g. back-jack, forward leg swinging, or push-up method), and also according to preference. Regardless of location, the stance and the principles involved are essentially the same. Guarding at the side seems the most favorable location and is recommended for guarding a patient using stairs with a handrail. The other locations for guarding are proposed as variations or adaptations of the basic method with full realization of their limitations.

b) Place one hand on the patient's shoulder and the other hand on the safety belt permitting assistance in either ascending or descending stairs. If the patient is ascending, the therapist can easily prevent the patient from losing balance backward by pushing his hips forward and the shoulders backward. Patients who have difficulty in raising the feet to the step above can often be given confidence and assistance from the rear by being lifted at the hips and being supported at the shoulders with the other hand. In descending, if the patient falls forward, the therapist can restore the patient's balance as for ascending. Until descending stairs is well learned, the therapist can control the rate of descent by holding back on the safety belt while supporting the patient under the shoulder.

After each step the therapist should readjust his position on the stairs so that a broad base of support is maintained and so that the therapist can stay as close to the patient as possible. The therapist must never let the patient (weight or mass) disturb the relationship between his center of gravity, line of gravity and base of support.

c) While guarding in front of the patient as he descends, keep one hand on the safety belt and the other hand on the shoulder. In this case, the patient moves into the therapist's base of support whereby adequate stability can be maintained. If the patient falls forward, the therapist can easily check the fall with his shoulders. However, if the patient completely loses balance, the load may force the therapist off balance backward especially when at the top of the staircase; therefore, extreme care must be taken so that both therapist and patient are protected from falling.

When the patient ascends the stairs, guarding in front of the patient is a poor position as the patient then moves away from the therapist's base of support. There is a resultant shift of the therapist's center of gravity and a disturbance in the relationship of the line of gravity to his base of support. Eventually the therapist will be guarding at arm's length which is almost never effective.

Guarding from the rear with one hand with both hands on the hips or safety belt allows the therapist to assist a beginner in lifting his feet to the step above or lowering the feet to the step below, but the therapist is in a poor

position to guard a patient who suddenly and completely loses balance.

d) Guarding from the rear with one hand on the shoulder and the other hand on the safety belt permits a good position when ascending the stairs. The patient moves into the therapist's base of support and can be easily and quickly checked by the therapist when falling off balance backward. If the patient requires assistance to lift the feet to the step above, the therapist is in a poor position as all the factors of stability are being violated.

When the patient descends the stairs he moves still further away from the therapist's base of support. If the patient falls forward he can get completely away from the grasp of the therapist.

3. For curbs (Fig. 7A, B, C)

Patient: Performing curb activities, for example, ascending or descending curbs with braces and crutches.

Therapist: Guarding at the side of the patient.

Instructions to therapist:

a) Guard the patient in the same way as for using stairs with a handrail.

b) Stand either at the side, in the front, or to the rear of the patient. The position proposed as the basic method from the side of the patient. Guarding in the front and to the rear are proposed as alternate methods.

Guarding at the side is an excellent position from which to help the patient in either ascending or descending curbs. The therapist works within his base of support and can keep close to the patient so as to anticipate and prevent falls.

Guarding in front of a patient is a good position for descending curbs but is a difficult position from which to maintain an adequate base of support when the patient ascends.

Guarding a patient from behind is a good position if the patient is ascending but it is a poor position if he is descending from a curb. A fall forward would place the patient completely out of reach.

4. For stairs without a handrail (Fig. 8A, B, C, and D)

Patient: Performing stair climbing without a handrail.

Therapist: Guarding on the stairs at the side of the patient.

Instructions to therapist:

a) Using stairs with a handrail and curbs should be learned before this activity is attempted.

b) Guard the patient in the same way as for using stairs with a handrail and for curb activities.

c) Two therapists should help the beginner for the first few times. One should be in front and to one side of the patient, with one hand on the crutches and the other hand on the shoulders. It is this therapist's duty to stabilize the crutches and push the shoulders back if the patient falls off balance

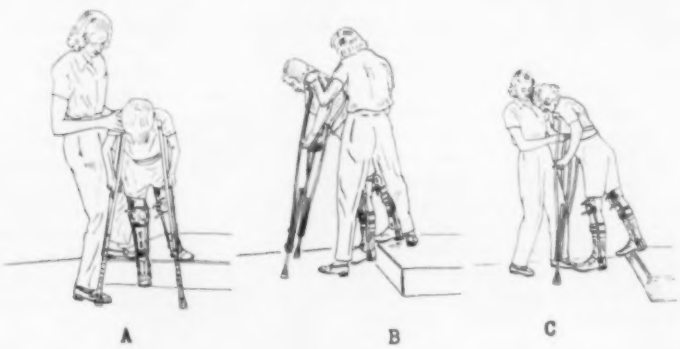

Figure 7.

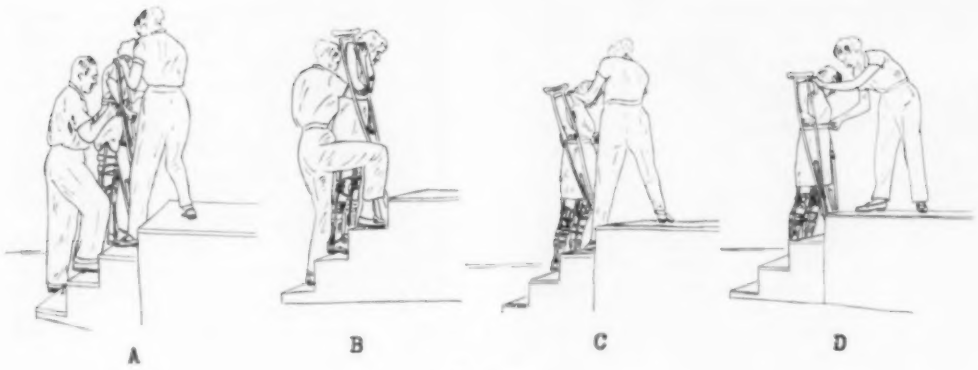

Figure 8.

forward or "jacks." The other therapist should be behind the patient and off to the side opposite that taken by the partner. Both hands should be on the safety belt. This therapist should help the patient to lift his feet to the step above when ascending stairs, or to lower his feet to the step below when descending stairs. He should also prevent or correct jack-knifing. Both therapists should maintain a solid base of support, stay as close to the patient as possible, and observe the rules for safe lifting.

d) When one therapist works alone the basic method is guarding at the side. The stance is the same as for using stairs with a handrail and curbs with this execption: the hand is placed under the arm instead of on the shoulder. If this is not done, the therapist can easily interfere with raising and lowering movements of the patient and the stability of the crutch which is an essential part of the patient's base of support.

e) If the therapist insists on guarding from behind the patient, the stance illustrated in Figure 8C should be used. The stance and method illustrated in Figure 8D may be disastrous when using stairs without a handrail because the patient is completely out of the therapist's base of support causing him to guard at arm's length. The result is strain on the back and arms.

5. For getting down and up from floor (Fig. 9A, B, C, and D)

Patient: Getting down and up from the floor with braces and crutches.

Therapist: Assisting patient in getting up from the floor.

Instructions to therapist:

a) Teaching the patient to get down or up from the floor is very much a matter of handling weights. Weights are always lifted with the large leg muscles, not with the arms or back. The principles which govern stooping, lifting, and carrying apply: the therapist stoops in preparation to assist the patient to jack-knife up onto feet; the therapist controls the patient at the hips and helps the patient to lift his hips to a level higher than his shoulders and to get his weight onto his feet.

b) Assist the patient in extending his trunk to assume the erect position and to place the crutches under the arms to assume the proper crutch stance. The patient uses forearm crutches and the therapist assists by using both hands to stabilize the hips to help the patient to get the feel of the proper trunk and arm action. Stand with one leg placed between the patient's braced legs. In this way, the therapist can be effective in the event the patient requires total assistance.

c) If the patient uses full length under arm crutches, assist by placing one hand on the crutches and the other hand on the safety belt. The crutches are stabilized with the hand, thereby making it easier for the patient to

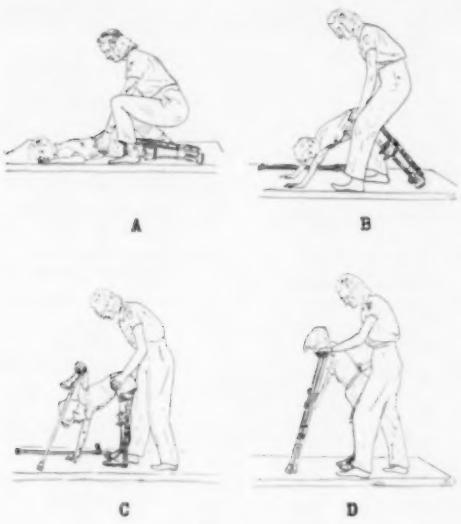

Figure 9.

climb up the crutches to the erect position. The hand on the hips can help the patient to feel how to roll the pelvis forward and under the trunk.

LIFTING TECHNICS

A. *Single lifts* (Fig. 10A and B)

Patient: Being assisted from seated position to standing.

Therapist: Assisting patient to standing position.

Instructions to therapist:

1. If the patient wears braces and uses crutches, the basic method shown can be used to assist her from all seated positions, e.g., toilet and straight chair.

This lift depends on perfect timing. The patient places her arms around the therapist's neck and pulls down, just as the therapist lifts the patient out of the chair to the erect position.

Place the hands through the crutch uprights and grasp the safety belt with both hands at the hips. It is then a simple matter to place the crutches under the patient's axillae and to assist her to establish the crutch balance stance.

2. If the patient does not wear braces but requires total assistance, the basic method shown can be used to stand and transfer a patient from wheel chair to bed, toilet, chair, or auto, and return.

Bring the patient to the standing position, keeping the patient's knees locked by pressure from the therapist's knees and pivot the patient to the place of transfer which in this case is to the bed.

This lift is easy if the therapist bends her knees and keeps the patient's knees locked between her knees as the pivot is made. If this is not done, the patient is in danger of slipping off the therapist's knees and buckling at the knees.

In both of these lifts the therapist must check herself to see that she has not forgotten any of the fundamentals learned for safe lifting. Are you keeping your back straight and your head up? Are you getting well under the patient and lifting with your more powerful leg muscles? Are you lifting straight up? Is your base of support broad enough to keep you and the patient in balance?

B. *Companion lifts* (Fig. 10C and D)

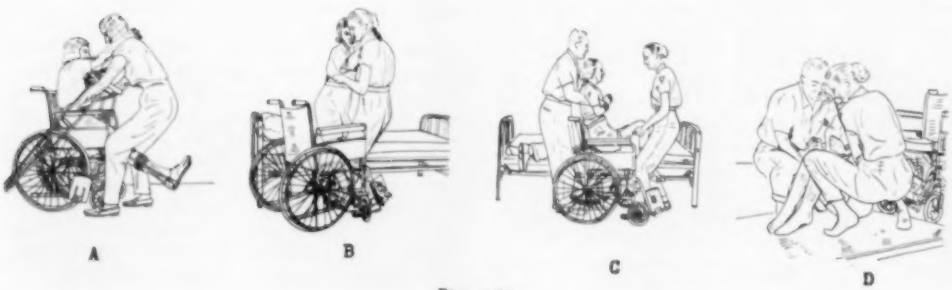

Figure 10.

Patient: Being lifted to point of transfer (bed, wheel chair, mats, toilet, auto).
Therapist: Working together to lift the patient to the point of transfer.
Instructions to therapists:

1. The two therapists must learn to work together with careful balance and timing, for the slightest mistake on the part of either will result in a poorly executed lift. In order to do this, one therapist should give the commands and the other therapist should follow the lead.
2. If the patient has to be carried the therapist should break his step so as to move the patient smoothly.

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The Pursed-Lip Technic in Abdominal Breathing Exercises for Pulmonary Emphysema

Harold J. Egli, B.S.

Until recent years, a negative attitude has persisted toward the emphysematous patient in regard to approaching the problem with vigor and an optimistic attitude. Some authors[1] contend that since the basic problem is physiologically irreversible, it can be treated only symptomatically with medicine. In fact, many medical texts[2, 3, 4, 5, 6] fail to mention or, at the most, devote only a paragraph or two to the possibilities of treatment with breathing exercises. Such a philosophy certainly denies the patient the possibilities that are concomitant with a *total* approach to the problem. It is, therefore, the intent of this paper to present a specific technic for breathing exercises for patients with pulmonary emphysema.

DEFINITION

By definition, emphysema is the enlargement of the whole or a part of the lung due to the loss of its inherent elasticity. The elastic quality of the lungs is contained primarily in the bronchi, bronchioles, alveolar ducts, and blood vessels, pointing out that it is primarily a prealveolar problem. Alveolar stretching and rupture are secondary developments, further compounding the negative aspects of this disease.

ETIOLOGY

Some of the dominant predisposing factors to chronic generalized obstructive emphysema include the following: chronic infectious bronchitis, allergic asthma, intrinsic tissue weakness, and pulmonary fibroses. All act as precursors of emphysema. The basic problem is one in which a vicious cycle exists once emphysema has been produced. An emphysematous area tends to retain mucus which acts as an excellent culture medium, thus enhancing the trend toward exacerbations and the sequela—loss of lung elasticity.

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PATHOLOGY AND PNEUMODYNAMICS

The loss of this elastic recoil of the lungs is variable in the degree of tissue involved. In fact, some authors[7] grade the degree of involvement by expressing the residual air as a per cent of the total lung volume (residual air and vital capacity). These authors feel that for emphysema alone to alter pulmonary function significantly, residual air must occupy 35 per cent or more of the total lung volume.

Some of the predisposing factors leading to inadequate aeration of the pulmonary blood supply are: cysts, polyp formation, retention of mucus, thickened mucosa, bronchospasm, and the collapsed bronchioles due to the intrapleural positive pressure (rather than negative) during expiration. All or any combination of these factors will reduce the mixing of air at the alveolar level. Consequently, the aerated blood does not return to the heart with a high saturation of oxygen and a low carbon dioxide tension. It should also be recognized that reduced or lost vascularity of certain lung areas will contribute to the above problem.

Basic pneumodynamics that a physical therapist should be cognizant of in relation to this problem include the following facts. In normal lung tissue, the elastic quality is opposed by the muscles of respiration; this promotes a negative intrapleural pressure during *both* inspiration and expiration. In the emphysematous patient the excursion of the rib cage and the diaphragm is greatly reduced and, due to the lost lung elasticity, pressure must be exerted on expiration in an attempt to force air out of the "flaccid" lungs. In a normal subject at the peak of inspiration, the negative pressure is approximately 15 mm. of mercury, and even at the end of expiration the negative intrapleural pressure is preserved at an approximate 5 mm. of mercury. This is not true in the emphysematous chest, where elastic recoil has been reduced to some degree. Negative intrapleural pressure during inspiration is approximately 5 mm. of mercury, but on expiration the intrapleural pressure changes from negative to positive, being as high as 5 to 10 mm. of mercury pressure. This is the crux of the problem. This causes the relatively flaccid bronchioles partially to collapse, and with increased respiratory effort, the patient can force the bronchioles entirely shut.

If this condition is allowed to persist, one can readily visualize the serious consequences. The abnormal lung tissue prevents normal oxygen and carbon dioxide exchange which, in turn, causes such an area to lose its blood supply, since a minimal oxygen tension is necessary in the capillary blood if perfusion via the pulmonary arteriole is to continue.[8]

TREATMENT

With an understanding of the total problem and its seriousness in mind, the following breathing exercises were instituted for the pulmonary emphysematous patients seen here since March, 1959.

Apparently Miller[9] at Johns Hopkins highly advocates this adjunctive type of therapy, but one major difference between his technic and the one we encourage is that he instructs the patient to leave his mouth *open* during expiration.

ORIENTING THE PATIENT

Whereas some institutions give rather comprehensive written instructions to this type of patient, we feel this is not necessarily indicated. Very often these patients have developed a negativistic attitude. With this is mind, we take the time to explain the basic nature of the illness. We explain the many factors that are contingent upon a good result, not the least being the patient's attitude and sustained cooperation in practicing his breathing exercise program. It is important that the patients be told that hyperventilation is not the answer to their problem, especially since most of them employ this technic.[10]

AIMS

The aims of treatment consist of the following: (1) to improve mixing of air in the lungs and in turn aerate the blood more efficiently, (2) to mobilize the rib cage and diaphragm, (3) to replace intermittently the usual respiratory cycle with this technic of breathing, (4) to aid in cleaning the chest of secretion accumulation, and (5) to give the patient a "tool" by which he can prevent, or reduce in degree, exertional dyspnea, and in turn reduce tension and apprehension. In conjunction with this point Barach[6] asserts that diaphragmatic breathing can replace the exhaustive type of breathing using the accessory muscles of respiration, in turn diminishing the degree of dyspnea.

EXERCISE PROGRAM

After the patient has been oriented to his problem, he is instructed first to blow his nose to clear the air passage. This is most important since inspired air should flow in through the nose—filtering, warming, and humidifying the air

to some degree. Exercises are to be done several times a day for a 10 minute period, but never immediately after a meal. The goal is to make this altered type of breathing become habitual through practice, thus patients are encouraged to use the technic many times daily. Also, prior to specific exercise practice, we encourage postural drainage if indicated, using the positions as described by Doyle.[11]

The first exercise the patient does is executed in the sitting position with the legs spread and the feet flat on the floor. The patient places a small pillow firmly against the abdomen and then bends forward over it, exhaling slowly against pursed lips. (Tell the patient to think of blowing out a candle.) This exercise compresses the abdominal viscera and elevates his diaphragm, thus encouraging a greater air exchange.

Since the abdominal musculature will function as a bellows, it is important to improve the tone of these muscles. This is done by having the patient assume the supine position with hips and knees flexed. From this position the patient raises his head, shoulders, and arms in an attempt to reach beyond the knees. As he executes this movement, he actively contracts the abdominal muscles, exhaling for a long enough period to feel the natural urge for inspiration. The patient is not encouraged to overextend expiration time since adequate ventilation is a composite of tidal volume with dead air space and frequency of respiration. By overextending the expiratory phase one reduces frequency and in turn decreases alveolar ventilation. Inhalation should be passive as the patient relaxes and returns to the starting position. This basic exercise can be modified in many ways, the extent depending upon the therapist's ingenuity. Some of the modifications include straight leg raising, forward bends from the kneeling position, active "pumping" of the abdominal muscles while in the supine position, and in the hand-knee position, active reversals of the lumbar curve from the lordotic to the kyphotic position. The patient's condition determines the number of repetitions to be done at any one session. Progression of exercises is contingent upon the patient's ability to execute the technic *properly*; rapidity of the program ensues.

Evaluation of Technic

We feel that the key to success in this type of breathing exercise is the use of the "pursed lips" during expiration. Because of the mild resistance offered to the expiratory air there is a positive pressure created within the bronchi which in turn encourages the lumen of the bronchioles to remain dilated.

To evaluate this technic more objectively, the following regimen was instituted. Patients having bronchitis or bronchospasm were treated for these conditions so that the conditions were considered to be controlled or stable. To accumulate information for a base line prior to treatment the following tests were done: vital capacity, maximal breathing capacity, and a 3 second expiratory curve.

The following information was observed and recorded: (1) whether a chest or abdominal breather, (2) respirations per minute, sitting, (3) walking distance (until dyspneic), (4) recovery time, (5) whether or not the patient could accomplish stair climbing, (6) technic of abdominal breathing exercise performance was graded, subjectively, (7) expiratory time, and (8) any pertinent patient subjective comments. The lung function studies were performed with a Collins 13.5 liter respirometer with a ventilographic attachment. Because the patient group thus far has been relatively small (12) and the fact that the author is primarily concerned in presenting a technic of breathing, no objective information will be included in this report. Nevertheless, in all fairness to the technic presented, it can be stated with firmness that all patients on this treatment program improved to some degree subjectively, as was demonstrated by their ability to perform certain activities of daily living, which prior to the treatment program was impossible.

Summary

A technic of breathing has been presented, emphasizing the importance of expiring against the mild resistance of pursed lips. Objective scientific evidence has not been included, but positive subjective results have been so apparent that we advocate including this technic in the treatment routine of patients with pulmonary emphysema.

The author wishes to thank Dr. Charles A. Laubach and Dr. Valentine F. Pytko for their guidance and helpfulness in preparing this paper.

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Physical Therapy Following Radical Mastectomy

Doris I. Neel

No radical breast operation for carcinoma is completely successful if following surgery the patient is handicapped with only partial use of the arm and shoulder on the affected side. Not only should surgery remove the disease from the patient, but postsurgical treatment should leave her in a state of maximum rehabilitation.

Under the program to be described, approximately 55 patients have received physical therapy following radical mastectomy. Physical therapy before X-ray therapy is advisable because X-ray therapy often produces an erythema and a subcutaneous fibrosis. If adequate postoperative, preradiation arm motion is achieved, it will encourage the patient to work hard to retain motion and gain additional range following radiation therapy.

Physical therapy procedures increase the blood supply to the flaps, and to the tissues of the chest wall and shoulder girdle, and seems to reduce the incidence of postradiation necrosis and the severity of postradiation skin reactions.

SURGICAL PROCEDURE

In radical mastectomy, generally performed for malignancy of the breast, the greater part of the pectoralis major muscle and the entire pectoralis minor muscle are removed together with all of the contents of the axilla and the breast en bloc. The portion of the pectoralis major which has its origin on the clavicle is preserved as this is the only muscle left to produce forward motion of the arm and shoulder girdle. The skin is excised to include the breast and a necessary margin of the skin around the breast tumor. In most cases it is possible for the surgeon to mobilize the medial skin flap by freeing the other breast, skin, and subcutaneous tissue from the underlying ribs and intercostal muscles. This increases the mobility of the medial flap. The lateral skin flap is mobilized by freeing the latissimus dorsi from the lateral chest wall. These two procedures make it possible in most cases to approximate the breast flaps thereby avoiding the use of free full thickness grafts or pedicle flaps.

The incision is made vertically in most cases and the upper portion of the incision is brought medial to the head of the humerus and usually ends just below the clavicle in the area of the middle third. The lower end of the incision extends down over the rectus muscle on the same side. The upper end of the sheath of the rectus is usually removed. At times portions of the serratus anterior muscle are removed along with the pectoralis major and minor muscles.

To reduce the strain on the suture line, traction sutures are placed through the skin and through the intercostal muscles approximately 3 to 4 inches away from the suture line. This permits that portion of the flap between the tacking suture line to be free and without tension. Suction drainage is obtained by placing

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a rubber catheter in a stab wound in the axilla at the lower end of the suture line.

The skin flaps are usually fairly well healed in three to four weeks. Until this healing has occurred the patient is not urged to use the arm or shoulder although she is permitted to do what she can without too much discomfort. As soon as the skin flaps are well healed, the patient is encouraged to use her arm in all possible directions. She is instructed to "walk up the wall" with the fingers and to "climb" a little higher each day so as to develop forward motion.

PHYSICAL THERAPY PROCEDURES

In every case, and especially if the suture line is extensive, it is standard procedure to start treatment with gentle diaphragmatic breathing exercises to improve the strength of the abdominal muscles and increase motion at this point. The thorax, which is bounded below by the diaphragm with its several openings communicating with the abdomen, has its principal structural foundation furnished by the spine. Therefore, a large roll or pillow placed under the patient's knees gives relaxation of the lower back and makes diaphragmatic breathing easier.

Passive motion is started for stretching and arm raising laterally. In addition to this, the patient is given massage over the skin flaps. This massage consists of a rather deep, firm motion with the purpose of loosening and mobilizing the skin and subcutaneous tissue from the chest wall. It is impossible to knead the muscles, except those of the arm, as the whole area is tender and too tight. When the wound is well healed, using the finger tips to give a firm, vibratory motion near the suture line is helpful. The use of mechanical devices or assistance is too severe for the tender surface and is not advisable.

After the first few days of physical therapy, a sponge rubber roll may be placed under the patient's spine in order to elevate the thoracic cage thereby increasing the subcostal angle. This passive procedure lessens the feeling of constriction of the chest wall. Sometimes the same type of roll can be used horizontally across the scapulae in order to gradually stretch the chest in the region where the pectoralis muscles were originally attached. Light weights are placed in the patient's hand, and she is then given gentle breathing exercises while performing upward and outward arm circles.

In some cases there may be sustained contraction or contracture of the intercostal muscles with a tendency to "favor" the affected side. If so, a sponge rubber roll may be placed under the opposite side while the physical therapist gives stretching and massage. This lifts the partially concave side to a slight convexity of the ribs and aids greatly in loosening and widening the affected structures.

After passive stretching and massage, the gentle, active exercises are started: abduction, forward-upward motion, and eventually external rotation. It is seldom necessary to use equipment, although chest weights, dumbbells, or a wand add variety to the exercises and can be helpful at this later stage. The see-saw exercise is excellent for developing the rectus muscle; the patient is instructed to raise first the head, then the feet, alternately, while lying supine on the table.

The range of movement of the ribs and the flexibility of remaining chest muscles is temporarily diminished following surgery. Therefore, the gradually increased breathing exercises for expansion of the ribs are important. The use of the sponge rubber roll during passive stretching and massage, as well as for active exercises, cannot be overemphasized. Also the size of the rubber roll should be gradually increased, according to the improvement and endurance of the patient.

Massage of the back for relaxation may be combined with intercostal muscle stretching, but should not be given until the patient is able to lie face down on the table without discomfort.

Sometimes there may be an involuntary contraction of the intercostal muscle fibers caused by active or passive movement of the arm, the result being much the same as in tetany or in related conditions affected by the circulation of the blood. Occasionally, as in the case of a bilateral radical mastectomy, where one breast is removed a few years after the other, there may be a peculiar deformation of the chest. It becomes round like a barrel and during respiration the rib cage is lifted vertically instead of expanding laterally. Here again, the rubber roll is an aid to the physical therapist and a comfort to the patient.

Nearly all patients develop a certain amount of cervical tension; therefore, it is advisable for relaxation, and comforting to the patient, to end the treatment with massage of the neck using deep kneading and gentle stretching, with occasional head rotation to the unaffected side while applying a downward pressure on the shoulder. This procedure stretches the deltoid and sternocleidomastoid muscles on the affected side and helps to obviate any trouble the patient might have later in driving a car when it becomes necessary to look backward over her shoulder.

Eventually there should be complete mobility of the shoulder girdle. There also should be as much muscle tone and strength in forward motion of the arm and shoulder girdle as before the operation. At the time of discharge from physical therapy, range of motion should permit the patient to reach with her fingers down her back below the spines of the scapulae, and from below upwards to the scapulae so that in bathing or dressing no part of the back is inaccessible to her.

A small percentage of patients fail to obtain full range of motion of the upper arm and shoulder girdle. This is due primarily to such coincidental interferences as calcium deposit with bursitis of the shoulder joint which were present before surgery.

Cases presenting residual edema when admitted for physical therapy are in the minority. The edema and swelling have usually disappeared after the second week of treatment. Only two patients experienced this kind of complication.

The average program provides for treatment three times per week the first week, two times per week for two or three more weeks, and active exercises every day at home. These exercises are most effective after a warm shower, but this depends on the stage of healing and removal of dressings. The patient is advised to continue active exercises at home for several months after dismissal and very few need to return for further treatment after X-ray therapy.

Factors necessary to a good result are first, complete joint mobility within limitations of the individual case; and second, expansion of the rib cage for easier breathing. More active exercises, using stall bars and chest weights, may be given the occasional patient who becomes enthusiastic about a degree of development she feels she never acquired before her illness.

It is only fitting to mention that in a properly balanced regimen of physical therapy the emotional aspects and sympathetic understanding on the part of the therapist can never be ignored.

CASE 1. A 52 year old female had a left radical mastectomy Feb. 15, 1945. Although the wound was slow to heal, physical therapy was started on March 22. No massage could be done near the suture line. The intercostal muscles were gradually stretched and gentle massage to other areas was used. The shoulder responded well to forward and lateral motion. By May 11, the wound was well healed, the dressings had been removed, and the patient was able to start warm showers. Physical therapy was increased from passive to active exercises and massage was continued.

The patient had been doing gentle active exercises, such as arm raising upward and lateral arm raising while lying on her back with a sponge rubber roll placed under her shoulders. X-ray therapy was started the week after the wound was healed. The patient expressed no discomfort from X-ray therapy. Exercises were made more strenuous. Stall bars, the rowing machine, and chest weights were used. End results were most satisfactory. It is worthy to note that in this case the patient had been used to hard physical work all her life; had even lifted 100 pound grain sacks. She had 26 treatments, coming in three times per week at her own request. She desired optimum results and obtained them.

March 28, 1954, this same patient returned for further physical therapy following a right radical mastectomy. This was not believed to be a recurrence of the previous malignancy. As before, healing was slow and physical therapy was started before the wound was completely closed. Arm motion was good. Removal of the second breast resulted in a posture problem and treatment consisted of thoracic stretching and pressure to the dorsal spine. There never was edema at any time during physical therapy nor has there been since. The patient had 14 treatments and was given posture exercises and was instructed in relaxing positions to be done at home. X-ray therapy caused no prolonged inconvenience. Final results were good.

CASE 2. A 49 year old female had a right radical mastectomy on Apr. 15, 1958. This patient was exceptionally slow to heal and physical therapy was not ordered until June 2. Treatment progressed without complications. The patient was an athletic person, had sailed a boat, and swam frequently up to the time of her surgery. There was tension of the neck musculature and physical therapy included treatment to induce relaxation. Arm motion was fair in all directions. After eight treatments, the patient went on vacation. She used her arm as much as possible and was helped by swimming. At the end of July she returned from vacation and started X-ray therapy. This caused some tightening of the muscles and general discomfort. Six more physical therapy treatments were given, the first two for relaxation of muscle spasm, neck tension, and deep, gentle massage to the intercostal muscles. The next four treatments consisted of massage and passive and active exercises to get maximum action in all directions of the shoulder joint and girdle. The results were good.

The life history of the person prior to surgery must necessarily influence the results acquired by physical therapy. An athletic woman from 30 to 40 years of age obviously would present a totally different picture than would a person of 55 to 60 years who has led a sedentary life; yet each of these persons can present a most satisfactory conclusion to treatment.

The author wishes to express appreciation to William J. Tennison, M.D., for his professional suggestions, helpful criticism, and for the invaluable therapeutic experience made possible by the physical therapy work done on many of his postoperative cases.

*Pain Associated with Osteoarthritis**

First Case History

Ivan Kline, B.S.

H. S., a 39 year old high school teacher of agriculture, was seen by the referring orthopedic surgeon in his office on May 13, 1958. The patient's chief complaint was severe low back pain with pain also present in his posterior thighs, knees, gastrocnemius muscles, and interscapular areas. The patient awoke one morning with pain in the right gluteal area and two months later started to have low back pain as well as intermittent gluteal pain. His medical history revealed that two years previously, he was diagnosed as having degenerative disk disease. He wore a surgical corset but without relief of symptoms, and a laminectomy of lumbar vertebrae four and five was performed on Nov. 5, 1957. H. S. was asymptomatic until March 17, 1958, when pain reoccurred while he was digging post holes. On Apr. 7, 1958, a course of physical therapy was prescribed in the form of hot packs and massage treatments to the lumbar area and hips for one week. The patient stated this was helpful but gave him only temporary relief of pain for the remainder of the day on which he received treatment.

Physical examination disclosed a 39 year old man moving about slowly as if chronically fatigued and appearing older than his stated age. In the standing position he presented an atrocious posture, drooping shoulders, sunken chest, protuberant abdomen and a lordotic curve of the lumbar spine. There was a lumbar scoliosis present with convexity to the right, and the iliac crest on the right was ½ inch lower than on the left. Lumbar motion was 50 per cent of normal; straight leg raising to 45 degrees caused posterior thigh pain. Diffuse tenderness of lumbar and lumbosacral areas was evident; tightness and atrophy of erector spinae muscles with fair power in the rectus abdominis muscle were noted but there was no atrophy of the lower extremities. No reflex or sensory changes were noted.

X-ray examination revealed degenerative changes in the third, fourth and fifth lumbar interspaces with changes more severe in the lower segments.

At this time a diagnosis of degenerative arthritis of the lumbar spine and lumbosacral joints was made.

Strengthening exercises to be done systematically and with progression of difficulty for trunk flexor muscles and posture correction were prescribed on May 13, 1958. The patient was instructed to carry out the exercises daily at home for one month. Salicylates had been prescribed to relieve pain while performing the exercises.

When the patient was reexamined on June 24, 1958, there was an increase in range of motion of straight leg raising and trunk motion, the right lumbar scoliosis was present when standing or sitting but was relieved when lying, and local tenderness of the three lower lumbar interspaces was evident. Inasmuch as there was no improvement in symptoms from conservative measures, hospitalization was recommended for further study and treatment.

H. S. was admitted to the hospital on July 7, 1958. X-ray examination revealed degenerative changes of the lumbar spine, reversed lumbar lordotic curve and hypertrophic overgrowth of the anterior superior margin of the fourth lumbar vertebral body. The myelogram did not reveal disk protrusion. Physical therapy in the form of diathermy and massage to the lumbar area was given from July 7 through July 14, 1958, as an aid for general relaxation and patient comfort.

On July 15, 1958, a spinal fusion from the distal portion of the fourth lumbar vertebra extending inferiorly to the second sacral vertebra was performed. An H-type bone graft 2¾ inches by 1½ inches was removed from the lateral wall of the right ilium and implanted at the site to be fused. Postoperatively the patient was immobilized in a body cast with a short spica on the left thigh.

Two weeks postoperatively, ambulation in the parallel bars with progression to crutches was prescribed. The patient made four visits to the clinic then was discharged, since he was ambulatory using a two-point gait and was free of pain.

The cast was removed on Oct. 9, 1958 (three months postsurgery), and a four bar spinal brace was applied. Reexamination by X ray revealed satisfactory findings.

On Nov. 11, 1958 (four months postsurgery), the back brace was lowered 1 inch. A surgical corset for use while sleeping and bed boards were prescribed. Low back pain was termed minimal by the patient.

When seen on Dec. 12, 1958 (five months postsurgery), the patient expressed no symptoms of pain and his support was changed from a back brace to a surgical corset. Light activity was allowed.

The physical examination on Jan. 12, 1959 (six months postsurgery) revealed good motion of the

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* This case report and the two that follow were presented at the Annual Conference of the American Physical Therapy Association, Minneapolis, June, 1959.

thoracic spine but no motion of the lumbar spine could be observed clinically. The patient was told to resume all activity as he desired.

When seen on Apr. 19, 1959 (nine months post-surgery) for follow-up evaluation, the physical examination was negative. His posture was normal, but the patient complained of generalized aching pain in the thoracic and lumbar regions. At this time there was a question of further degenerative changes and/or psychosomatic complaints since the patient had returned to gainful employment.

In reviewing this case, physical therapy was helpful in four ways: (1) preoperatively for diagnostic purposes, to determine the degree of relief of pain by conservative measures; (2) during hospitalization for temporary relief of pain and creature comfort; (3) postoperatively for rehabilitation procedures directed toward functional training and activities of daily living, and (4) after completion of mobilization, medically for restoration of strength, range of motion, and instructions in substitutive movements necessary because of the spinal fusion.

Second Case History

Raymond O. Nordquist, B.A.

Mr. M., 60 years old, was admitted to our hospital which cares for the chronically ill. He had given up his work six weeks before admission and had been living at home with his wife. He had an eight year history of osteoarthritis with involvement of his shoulders, knees, and ankles, his left knee being the most severely involved joint. He had first noted acute joint pain following physical exercise; this pain diminished with rest.

During these past eight years Mr. M. had been given a series of drugs but with only temporary relief from any of them. Each had been discontinued after varying periods of a week to two or three months. He received his greatest relief from pain from the daily use of from 20 to 40 grains of aspirin and rest.

At the time he entered the hospital he was overweight (204 pounds). His height was 5 feet 10 inches. There was no limitation of extension in either knee. Flexion of the left knee was limited to 60 degrees. His left thigh was 1 inch less in circumference than the right. There was marked lateral instability of the left knee with and without contraction of the quadriceps muscle.

X-ray examination revealed degenerative arthritic changes of the knees characterized by lipping, spurring, and cystic changes in the articulating surfaces; hypertrophic spurs were present on the shoulder joints.

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Mr. M. had objective pain as a result of his joint disease and also demonstrated emotional problems directly related to this disease; he had magnified his pain out of its true proportion. One of our big problems was to overcome this emotional overlay.

Mr. M.'s case was reviewed in our combined orthopedic and physical medicine conference with the ward physician and the following course of action was outlined. Daily Hubbard tank treatments were given with active exercises for all major joints performed while in the water. The water was kept at 98 degrees to promote muscle relaxation and to relieve pain in the involved joints before attempting to regain full range of motion of the joints. Hydrotherapy was followed by slowly graduated resistive exercises for the upper and lower extremities. The quadriceps were exercised in nonweight bearing position to prevent additional trauma to the joint structures.

A long leg brace with a 6 inch thigh corset, a knee lock which could be kept either locked or unlocked, and a freely movable ankle joint to be attached to a high top orthopedic shoe was ordered. The brace was made in this manner to provide lateral stability to the knee even with the artificial knee joint unlocked.

As soon as the brace was received Mr. M. began crutch walking with the brace locked at the knee and without bearing weight on the left. He was encouraged to carry as much weight on his upper extremities as he could comfortably tolerate during this initial phase so as to relieve strain on the lower extremities.

During the six weeks that Mr. M. was in the hospital he improved steadily. Strength of his quadriceps muscle increased from 8 pounds of resistance to 15 pounds on the left, and from 10 to 25 pounds on the right. Even with the improved left quadriceps power, the patient continued to have lateral instability of the left knee. The additional quadriceps strength plus the support of the long leg brace gave him much needed lateral stability which allowed him to progress quickly from nonweight bearing to weight bearing with the knee locked and then to full weight bearing with the knee unlocked, and later without crutches altogether.

Through the work of the dietary department and encouragement by the hospital staff, he was able to lose 14 pounds, further decreasing stress on the knee.

In regard to his diet, his wife met with the therapeutic dietician who gave her suggestions on how to help him maintain his lowered weight. This proved especially helpful in the last few weeks of his hospitalization because he was going home for the weekends. This transition period was a much smoother one than it might otherwise have been. Fortunately, the decrease in pain and resulting physical gains helped to improve his emotional behavior.

At the time of his discharge from the hospital, he reported his knee no longer pained him when walking. He did indicate, however, that he noticed pain

when he attempted to walk for short periods without the brace. He continued on his regimen of exercises for his quadriceps and was able to continue to walk for moderate distances without pain.

Third Case History

E. Maurine Rathje, B.A.

In February, 1958, a 61 year old male, 5 feet 7 inches tall, weighing 160 pounds, was admitted to Holy Cross Hospital ostensibly for the repair of a large direct inguinal hernia on his left side, but also for evaluation of hypertension and pain in the left hip. Since we, in the field of physical therapy, are interested mainly in the last problem of those mentioned, we will direct our attention to this phase.

The patient was employed as a car repairman for the D & RGW Railway Co. It was his duty to walk down the length of a string of freight cars as they stood in the railroad yards, couple the air hoses between each car, and oil and inspect the journal boxes on each car. The repairmen worked in pairs eliminating the necessity for crawling or climbing between the cars, but each one walked from 2½ to 4 miles a day over the rough terrain of railroad ties interspersed with coarse rock with only occasional rest periods which varied greatly in length.

His history disclosed that the patient had first noticed the pain in his left hip about 1950, but it was never severe enough to prevent him from working. In 1956, it became more severe and was brought to the attention of the company doctor who made a diagnosis of rheumatoid arthritis and prescribed cortisone to be taken orally. This program was followed for 9 months, but was discontinued when no improvement was noted.

At the time of admission to the hospital in 1958, in addition to the pain in the left hip, the patient also complained of nerve root pain in the left leg. He described it as feeling as if he were "walking on a sprained ankle." This pain also had been present for several years.

Physical examination showed a painful left hip joint with marked limitation of motion of the left lower extremity. Stereographic examination of the pelvis and left hip revealed rather extensive degenerative changes in the left hip manifested by marked osteophytic reaction at the margins of the acetabulum and femoral head, and narrowing of the hip joint. In the superior lateral aspect of the joint the space was almost completely obliterated. A smooth radiolucent defect, 2 cm. in diameter, was seen in the left ilium just above the roof of the acetabulum. This had the appearance of a degenerative cystic change. A similar examination of the lumbar spine showed degenerative changes involving the intervertebral disk between the second and third lumbar vertebrae.

The attending physician, an internist, requested a consultation with an orthopedist, with the specific inquiry as to the possibility of a herniated nucleus pulposus. The consulting physician's report disclosed that the range of motion in the left hip was limited to 90 degrees of flexion and 180 degrees extension (nothing beyond the midline), with virtually no rotation present; while examination of the back and a neurologic examination of the lower extremities revealed that they were normal. He expressed the impression of osteoarthritis in the left hip, and suggested a conservative approach to treatment (heat, salicylates, less activity, and use of a cane) with the recommendation that if the symptoms became a good deal more disabling, the patient should be considered for an arthoplasty.

In June, 1958, the patient was referred to our department where a program of physical therapy was instituted. This consisted of whirlpool and massage to the left hip, and the following active exercises:

In a side-lying position:

1. Clockwise and counterclockwise circumduction of the left leg

In a supine position:

2. Flexion of the left hip and knee toward the chest, then extension of the knee, and lowering of the extended leg to the table
3. Abduction and adduction of the left hip
4. Rotation of the left hip

For the first two weeks, the patient received physical therapy daily which resulted in marked diminution of pain and increased freedom of movement. From then on he was seen once a week in our department, and was instructed to do the exercises at home twice daily, a program which is still in effect.

In June, 1959, his range of motion was as follows:

Flexion—100 degrees (an increase of 10 degrees over the previous measurement)

Extension—5 degrees beyond the midline (an increase of 5 degrees)

Abduction—35 degrees (this apparently was not measured before)

External rotation—40 degrees (not measured before)

Internal rotation—0 degrees (no increase over previous measurement)

The length of his left leg, measuring from the anterior superior iliac spine to the medial malleolus was 32 inches, 1 inch shorter than the corresponding measurement of his right leg. This difference might possibly be attributed to the narrowing of joint space in the left hip. He walked with a decided limp and at one time was given a lift to wear in his left shoe, but it proved to be so uncomfortable he discontinued the use of it.

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The patient continues to complain of pain in the left hip joint at times and says he is able to forecast changes in the weather. Occasionally, he suffers from pain extending from the left hip to the left knee which he describes as muscular in type, and which he attributes to the fact that he tenses the hip and thigh muscles in order to protect the hip joint while walking over the rough terrain at work. He continues to work as a car repairman and was able to obtain a packing iron, the tool he uses, in an extra long length, so that he can also use it as a cane. This patient takes no medication other than aspirin for relief of pain. He has a tendency toward obesity and finds it necessary at intervals to diet in order to regulate his weight, which is essential to the control of both his osteoarthritis and his hypertension. He does have difficulty with one phase of the activities of daily living; he is unable to put a stocking on his left foot by himself.

Communication with Non-English Speaking Patients:

III. Dutch-Flemish, Finnish, German

EDITOR'S NOTE: Translations of useful expressions for this issue were contributed by Miss Els C. Minnigh, Chief of Rehabilitation, Goois Childrens Hospital, Bussum, Holland, a member of Nederlansch Genootschap voor Heilgymnastick, Massage en Physiotechnick; Miss Sylvi Honka, Director, Physical Therapy Institute of Invalid Foundation, Helsinki, a member of Suomen Laakintavoimistelijain Yhdistys r.y., and Third Vice President of the World Confederation for Physical Therapy; and Dr. Ruth Bergholtz, Secretary of the Zentralverband Krankengymnastick e.v., West Germany.

	ENGLISH	DUTCH-FLEMISH	FINNISH	GERMAN
I.	*General Expressions*			
1.	You are not going to fall	U valt niet	Ette te kaadu	Sie werden nicht fallen
2.	Don't be afraid	Wees niet bang	Älkää pelätkö	Haben Sie keine Angst
3.	That doesn't hurt you	Dat doet geen pyn	Ei se koske	Es wird Ihnen nicht weh tun
4.	Don't cry	Niet huilen	Älkää itkekö	Nicht weinen
5.	Don't worry	Niet ongerust zyn	Älkää huolehtiko	Machen Sie sich keine Sorgen
6.	Sit up	Ga zitten	Nouskaa istumaan	Aufsetzen
7.	Stand up	Sta op	Nouskaa seisomaan	Aufstehen
8.	Walk	Loop	Kävelkää	Gehen
9.	Roll over	Omdraaien	Kääntykää ympäri	Umdrehen
10.	Lie on your face on the table.	Ga voor overliggen	Menkää vatsallenne hoitopöydälle	Legen Sie sich auf den Bauch
11.	Lie on your back on the table	Ga op de rug liggen	Menkää selällenne hoitopöydälle	Lagen Sie sich auf den Rücken
12.	Lie on your side	Ga op de zy liggen	Menkää sivumakuulle	Legen Sie sich auf die Seite
13.	Lie on your other side	Ga op de andere zy liggen	Kääntykää toiselle kyljelle	Legen Sie sich auf die andere Seite
14.	This way	Hierheen	Näin	Hierhin
15.	Again	Nog e. ns	Vielä	Noch einmal
16.	Hold it	Hou stil	Pitäkää	Halten
17.	With force (against resistance)	Krachtig	Voimakkaasti (vastusta vastaan)	Mit Kraft
18.	Push down with your hands to lift your body	Steun op je handen en druk je lichaam op	Painakaa käsillä alas ja nostakaa vartalo	Stemmen Sie mit den Händen
19.	Slowly	Langzaam	Hitaasti	Langsam
20.	Not so fast	Niet zo vlug	Ei niin nopeasti	Nicht so schnell
21.	Rest	Rust	Lepo	Ausruhen

ENGLISH	DUTCH-FLEMISH	FINNISH	GERMAN
II. *Anatomical Names*			
1. Neck	Hals	Kaula	Nacken
2. Abdomen	Buik	Vatsa	Bauch
3. Chest	Borst	Rinta	Brust
4. Back	Rug	Selkä	Rücken
5. Spine	Wervelkolom	Selkäranka	Wirbelsäule
6. Face	Gezicht	Kasvot	Gesicht
7. Thumb	Duim	Peukalo	Daumen
8. Buttocks	Billen	Pakarat	Gesäss
9. Knee	Knie	Polvi	Knie
10. Heel	Hiel	Kantapää	Ferse
11. Shoulder	Schouder	Olkapää	Schulter
12. Arm	Arm	Käsivarsi	Arm
13. Elbow	Elleboog	Kyynärpää	Ellbogen
14. Wrist	Pols	Ranne	Handgelenk
15. Hand	Hand	Käsi	Hand
16. Fingers	Vingers	Sormet	Finger
17. Hip	Heup	Lonkka	Hüfte
18. Leg	Been	Jalka	Bein
19. Foot	Voet	Jalkaterä	Fuss
20. Toes	Tenen	Varpaat	Zehen
III. *Face and Neck*			
1. Lift your head	Til het hoofd op	Nostakaa pää ylös	Kopf heben
2. Open your mouth	Doe de mond open	Avatkaa suunne	Mund öffenen
3. Close your mouth	Doe de mond dicht	Pankaa suu kiinni	Mund schliessen
4. Open your eyes	Open de ogen	Avatkaa silmät	Augen öffnen
5. Close your eyes	Sluit de ogen	Pankaa silmät kiinni	Augen schliessen
6. Wrinkle your nose	Trek de neus op	Rypistäkää nenää	Nase runzeln
7. Smile	Lach	Hymyilkää	Lächeln
IV. *Upper Extremity*			
1. Raise your arm	Til de arm op	Nostakaa käsi ylös	Armheben
2. Move your arm out to the side	Arm zywaarts	Viekää käsi sivulle ulos	Arm seitheben
3. Move your arm back to your side	Arm terug naar de zy	Viekää käsi takaisin	Arm anlegen
4. Bend your elbow	Buig de elleboog	Koukistakaa kyynärpää	Ellbogen bewegen
5. Straighten your elbow	Strek de elleboog	Ojentakaa kyynärpää	Ellbogen streden
6. Turn your hand over	Draai de hand om	Kääntäkää käsi	Hand drehen
7. Bend your fingers	Buig de vingers	Koukistakaa sormet	Finger bewegen
8. Straighten your fingers	Strek de vingers uit	Ojentakaa sormet	Finger strecken
9. Bend your wrist (flexion)	Buig de pols	Koukistakaa ranne Volar.flex.	Handgelenk beugen
10. Lift your hand (extension)	Til de hand op	Nostakaa käsi Dors.flex.	Handgelenk strecken
11. Pull your shoulders together	Schouders naar achteren	Vetäkää hartiat yhteen	Schultern zusammenziehen
12. Lift your shoulder	Trek de schouder op	Nostakaa olkapää	Schultern heben
V. *Lower Extremity*			
1. Bend your hip	Buig de heup	Koukistakaa lonkka	Hüfte beugen
2. Lift your leg	Til het been op	Nostakaa jalka	Bein anheben
3. Bend your knee	Buig de knie	Koukistakaa polvi	Knie beugen
4. Straighten your knee	Strek de knie	Ojentakaa polvi	Knie strecken
5. Roll your leg in	Draai het been naar binnen	Kiertäkää jalka sisään	Bein einwärts drehen
6. Roll your leg out	Draai het been naar buiten	Kiertäkää jalka ulospäin	Bein auswärts drehen
7. Lift your foot	Trek de voet op	Nostakaa jalkaterä ylös	Fuss anziehen
8. Push your foot down	Duw de voet omlaag	Painakaa jalkaterä alas	Fuss herunterdrehen
9. Lift your toes	Trek de tenen op	Ojentakaa varpaat	Zehen strecken
10. Bend your toes	Buig de tenen	Koukistakaa varpaat	Zehen beugen
11. Pull your foot in	Trek de binnenrand van de voet op	Kiertäkää jalkaterä sisään	Fuss nach innen ziehen
12. Pull your foot out	Trek de buitenrand van de voet op	Kiertäkää jalkaterä ulos	Fuss nach aussen ziehen

Case Reports

*Fractures of Lower Extremities**

Dorothy P. Wagner, B.S.

Debbie, a 58 year old obese woman, was admitted to Michael Reese Hospital on Jan. 14, 1959, after being struck by a car as she crossed the street. She complained of pain in the back, ribs, and both legs.

X-ray reports revealed a transverse fracture through the head of the right fibula with no appreciable displacement of the bony parts. Also noted was marked hypertrophic spurring over the medial tibial and femoral condyles and some probable narrowing of the cartilage space of the knee joint medially, suggesting internal derangement. The left leg showed a badly comminuted fracture through the upper one third of the tibia with marked posterior displacement of a few of the fragments. The distal portion of the shaft was displaced medially, although there was about 50 per cent opposition of the bony surfaces. There was a transverse fracture through the upper portion of the fibular shaft with but slight displacement.

The chest X ray was negative. The film of the lumbar spine showed marked osteoarthritic changes about the fourth and fifth lumbar vertebrae but no other abnormalities.

The next day, a closed reduction and pinning of the left tibia was done under spinal anesthesia and a long leg cast was applied. The right leg was also encased in plaster because of the internal derangement of the knee joint.

The following day, the left leg was X rayed through the cast; the X ray showed that two internal fixation pins were in place, running transversely through the upper portion of the tibia and incorporated within the plaster cast. The pins flanked the comminuted fracture.

Fourteen days later, the cast on the right knee was removed. The legs were again X rayed and the report showed a transverse fracture and internal derangement of the right knee and a good alinement of the fracture of the left leg.

Sixteen days later, on February 19, Debbie was referred to physical therapy for gait training with nonweight bearing on the left foot. Preambulation exercise to strengthen the arm and progressive active exercise to the right knee were initiated along with standing balance activities. A lift, ¾ inch thick, had been attached to the sole and heel of the right shoe to lessen the effort needed to hold the casted left leg off the floor.

Five days later, gait training in the parallel bars was begun. Debbie was awkward due to her obesity, fatigued easily, and complained of pain in the low back and right knee. The patient said at this time that she had had no previous trouble with her back or right knee.

After three sessions in the parallel bars, walking was started in a pick-up walker. Debbie was not too cooperative and often refused to walk because of pain. Three weeks later she was put on crutches and walked poorly.

On March 2, or six weeks after the original insult, the pins were removed from the left leg and a second cast reapplied over the original posterior mold section. X rays at this time showed that the left tibia was held in good position and alinement. There was a small amount of callus formation bridging the fracture posteriorly.

Debbie continued her gait training, still complaining of pain in the right knee and low back.

On March 17, the cast was removed from the patient's left leg and physical therapy, consisting of radiant heat, massage and exercise for the left knee and ankle, was ordered along with continued gait training with nonweight bearing on the left.

The X ray at this time revealed solid callus formation of the left tibia.

Debbie had about 20 degrees of flexion of the left knee, and the muscle power of the left quadriceps enabled her to straighten the leg against gravity. The hip motions were normal but the left ankle motions were severely limited. There was considerable edema and the patient complained of pain in the entire left leg.

After treatment on the fourth day, Debbie stated there was much less pain. Flexion of the knee had increased to about 60 degrees and the ankle motions were almost normal. The edema was less but still present.

On May 8, the doctor ordered partial weight bearing on the left. The lift was removed from the right shoe and her crutches adjusted accordingly. Debbie did not complain of pain except with mobilization exercises of the left knee.

On June 2, Debbie was discharged from the hospital, able to walk without crutches and without pain. She had only 90 degrees of flexion of the left knee and will continue physical therapy on an outpatient basis to increase the range of motion.

The *Review* invites case reports from physical therapists who have followed an interesting course of treatment with or an unusual response to treatment by patients having one of the conditions listed below.

Paralysis of serratus anterior muscle
Acne vulgaris
Carpal tunnel syndrome

(*continued on page* 406)

Chief Physical Therapist, Michael Reese Hospital, Chicago.

* Presented at the Annual Conference of the American Physical Therapy Association, Minneapolis, June, 1959.

Suggestions from the Field

A Combination Long-Leg—Short-Leg Brace

Charles Dorando, B.A.

This combination double upright long-leg—short-leg brace is a regular long-leg brace constructed in three parts: (1) the thigh piece with knee joint attachments; (2) the shin pieces with attachments to be fitted into the knee joint attachments, and with side bars cut so that they can be attached to the side bars of a short-leg brace; and (3) the short-leg brace itself.

Director, Physical Therapy Department, St. Joseph Mercy Hospital, Pontiac, Michigan.

If a long-leg brace is to be used temporarily and a short-leg brace is to be used in the future, this combination brace will be ideal for it may be used as a long-leg brace or as a short-leg brace depending on the need.

The brace may easily be converted by removing eight screws from the side bars on the shin piece. After this is done, the short-leg brace is ready for use and very rarely needs further adjustments.

We are able to have this type of brace made at no additional cost to the patient, the price being the same as that charged for a similar long-leg brace.

Figure 1. Thigh piece with knee joint attachment and knee pad, shin pieces with knee joint attachment (note holes in shin piece), short-leg brace with holes in the uprights. Screws for attaching shin piece are in the foreground. The little round disks are washers for knee joints.

Figure 2. Combination long-leg, short-leg brace completely assembled.

1960-61 Dues Payable Now

Annual dues were payable May 1. To avoid loss of membership privileges and to receive the *Physical Therapy Review* without interruption, prompt payment is necessary. Your immediate response will be appreciated as a service to the Association.

Responses to the Mary McMillan Issue

The APTA is to be congratulated on the excellence of the McMillan issue of the Association's official journal. The quality of the papers contributed is living proof of Miss McMillan's confidence in the strength of the men and women who make up your profession. I count it a privilege to have had an opportunity to help briefly in the development of two schools, the one at Wisconsin and the one at Medical College of Virginia, and to have worked with physical therapists on a number of research projects. I should like therefore to contribute to the Fund established "To advance the science of physical therapy."

FRANCES A. HELLEBRANDT, M.D.

My memory was refreshed in her love for her chosen profession and for her fellow workers—always fellow workers—never ranking below her. She loved us and so we in turn did our *best*. Her vision for human capacity for development was so wonderful.

MARY LEE CASTLEMAN
Charter Member, APTA

In 1921 when I was at Harvard studying physical therapy I had the good fortune to know Miss McMillan to be exposed to her charm and wisdom. I shared her inspiration as did everyone who came in contact with her.

MARY COLLEARY
Life Member, APTA

I am forwarding . . . additional copies (of the McMillan issue) to former students of hers in China.

GERTRUDE MORRISON
Boston, Massachusetts

I am sending on my regular copies to St. Barnabas Hospital in Osaka, Japan, in answer to a request through my church.

EMILY J. GRIFFIN
Charter Member, APTA

We are indeed, interested in seeing this issue of the *Review*. The tributes to Miss McMillan, the fine picture of her taken in 1956, and the evidence of the important part she played in the world of physical therapy are very impressive. Those of us here who knew Miss McMillan and were fond of her send special thanks.

AGNES M. PEARCE, Secretary
China Medical Board
of New York, Inc.

I want to commend you and all those who had a part in preparing the February *Physical Therapy Review*. It was beautifully done and was a most appropriate tribute to Mary McMillan. I am sure that everyone who was privileged to know her is happy to have these printed words in her memory and honor. Her story is related with so much understanding that even those who did not know her must be inspired by her spirit and her vision of our profession.

LOUISE REINECKE
Editor in Chief, *1945-1950*
Physical Therapy Review

The 1960 February issue of the *Review* is certainly an excellent issue. Congratulations to each one who contributed the material for it. I am glad to know that copies are available as this is such an important part of the history of our profession. I hope to use the material in a Physical Therapy Seminar so that the students will learn of Mary McMillan's contribution to our field.

RUTH G. MONTEITH
Physical Therapy Education
University of Kansas Medical Center

The February *Review* is a treasure and an inspiration. My sincere congratulations to you and to all who assisted you in its development. My check to cover the cost of ten additional copies is enclosed. There is nothing I could find which could better serve to build into current nonmembers or fledglings a sense of history and to help them become contributing components in the stream of our history.

LORRAINE F. LAKE
Assistant Professor of Physical Therapy
and Anatomy
Washington University
School of Medicine

The original articles dealing with the relief of pain by therapeutic procedures, the focal point of Miss McMillan's benevolent life, are clearly presented and documented. It seems proper that such worthy contributions to our profession should be included in this issue.

The editorial, biography, and excerpts from letters in tribute to Miss McMillan reflect with sincerity the love and deep respect of those who knew her. My thanks to Mary Haskell and the others for a brief glimpse of the dedicated spirit, dynamic personality, and infectious enthusiasm of Mary McMillan.

MARGARET M. WINTZ
Instructor, Physical Therapy Department
University of Southern California

Editorial

A Fair Share of Support

Members who have attended any or all of the Congresses of the World Confederation for Physical Therapy are familiar to an extent with some of the organization's activities and functions. Others who have not been so fortunate may know of the work of the Confederation by other means of communciation. The greatest part of the activities of this international body will pass, however, without much attention from the average physical therapist.

The World Confederation for Physical Therapy was organized in 1951 and since then has conducted three Congresses; has been represented at an increasing number of meetings of International and National Medical and Health Groups; has given consultive assistance to many countries who are in the process of reorganizing or developing physical therapy services; and has developed and continues to develop guidance literature to meet existing needs. These functions by no means include the many day-to-day activities carried out from the headquarters in accordance with policies established by the Executive Committee and approved by the General Meetings.

The World Confederation for Physical Therapy, as any national or international organization, cannot operate without funds. When originally organized, the annual country-membership subscription dues were established at a modest sum. Fortunately, the Chartered Society of Great Britain voluntarily assumed the bulk of the financial burden during these establishing years. Within the past year it became apparent to the WCPT Executive Committee that a more realistic means of income must be established.

The Honorable Secretary has recently recommended to all member-organizations that the present member-organization subscription be changed to a member-organization per capita fee basis, and that this recommendation be presented for consideration at the General Meeting in 1963. Recognizing that a sounder fiscal basis for the World Confederation for Physical Therapy should be established before 1963, the Honorable Secretary further recommended that member-organizations take immediate action towards the establishment of the per capita scheme. When decisions on this proposed scheme are made known to the Honorable Secretary, the Executive Committee can then plan its work for the next four years.

The Board of Directors of the American Physical Therapy Association has accepted the recommendation of the per capita fee as a realistic and sound approach to financing the World Confederation for Physical Therapy.

Early this fall each member of the American Physical Therapy Association will be provided an opportunity to contribute toward supporting his organization as a member of the World Confederation. It is our hope that each of you will consider it an honor and a privilege to individually take part in making it possible for the American Physical Therapy Association to carry its fair share of support of the work being done by the World Confederation for Physical Therapy.

AGNES SNYDER, *President*
American Physical Therapy Association

In Honor of Mary McMillan

Recent contributions to the Physical Therapy Fund, Inc. in memory of Miss McMillan have been made by—

Mary Lee Castleman Dr. Frances A. Hellebrandt
Ethel Dryer Frances Tappan
Sargent College Faculty and Staff

Janet B. Merrill Memorial Fund Perpetuated

Alumnae of both the Harvard and Simmons Physical Therapy Programs have recently made two presentations of gifts to honor the name and memory of Janet B. Merrill. One thousand dollars has been received by the Physical Therapy Fund, Inc. with the hope that this contribution may be known as the Janet B. Merrill Memorial Fund; that it will be perpetuated; and that it will be used in the area of muscle dysfunction. The second gift of $400.00 has been gratefully acknowledged by Shirley M. Cogland, Technical Director of the Simmons College Program in Physical Therapy. This sum of money is to be used to further the development of the Physical Therapy Library at the Children's Hospital Medical Center, Boston, in memory of Miss Merrill.

Janet B. Merrill, a pioneer in the physical therapy profession, was a graduate of Sargent College, which is now a part of Boston University. She was appointed Director of Physical Therapeutics at Children's Hospital and the Harvard Infantile Paralysis Commission Clinics in September, 1917, and was named Director of Army Courses for the training of Reconstruction Aides who were detailed to the Harvard Medical School in October, 1918. In 1920 summer courses in physical therapy were first offered under the direction of Miss Merrill. These were similar to the Army courses. Under the Harvard Medical School the Course for Graduates in Physical Therapy continued until 1947 when the course was transferred to the aegis of Simmons College and continued to be under the direction of Miss Merrill until her death in 1951.

Miss Merrill was a charter member of the American Physical Therapy Association and its first Secretary-Treasurer. She was identified with Robert Lovett, M.D., and his conspicuous contribution in the care of poliomyelitis patients following the disastrous 1916 epidemic. Her great interest and ability in the after-care of poliomyelitis patients were exemplified in her teaching and in medical literature. A publication, *Physical Therapy in Infantile Paralysis*, co-authored with Arthur T. Legg, M.D., in 1932 became the outstanding textbook for muscle examination and muscle training.

KATHARINE CARLISLE
Harvard-Simmons Alumnae Fund Agent

Any Harvard or Simmons alumna who has not received letters from Shirley Cogland and Katharine Carlisle by June 1, 1960, regarding the details of the Janet B. Merrill Memorial Fund gifts, kindly notify:

Miss Katharine Carlisle
4 Crescent Road
Winchester, Massachusetts

of your correct address. The letters will be sent to you, including a sample of the bookplate each library book will bear in memory of Miss Merrill.

The Return Wins *Scholastic Magazine's* Award

In a presentation ceremony in the ballroom of the Gotham Hotel, on April 28, the American Physical Therapy Association's film, *The Return*, was given the award of "Outstanding" by M. R. Robinson, President and Publisher of *Scholastic Magazine*. Lucy Blair, Acting Executive Director, accepted the citation on behalf of the Association.

Pittsburgh • June 26-July 1 • Penn-Sheraton Hotel

1960 • CONFERENCE

Business Meetings and Program Schedule

June 23, 24, and 25 — **Board of Directors Meetings**

Sunday, June 26

9:00 A.M. — 5:00 P.M. — Section on Education
Self Employed Section
Public Health Section

5:00 P.M. — 10:00 P.M. — Pa Pitt's Melting Pot—Pennsylvania Chapter, Host
Pa Pitt Picnic and Square Dancing

Monday, June 27

9:00 A.M. — 5:00 P.M. — **General Registration**

9:00 A.M. — 12:00 Noon — **Delegates' Registration**

9:30 A.M. — 12:00 Noon — Group Meetings—Arthritis and Rheumatism Foundation, Crippled Children's Societies, Chapter Legislative Committees, Research Group, State Examining Committees

2:00 P.M. — 5:00 P.M. — Opening Session—Greetings, President's Address

THE ROLE OF THE EMPLOYER IN THE HEALTH OF THE WORKER, Dudley A. Irwin, M.D., Medical Director, Aluminum Company of America, Pittsburgh; and Miles O. Colwell, M.D., Plant Physician, New Kensington Branch, Aluminum Company of America

A LABOR HEALTH PROGRAM: ITS DEVELOPMENT AND SERVICES, Lorin E. Kerr, M.D., Assistant to the Executive Medical Officer, United Mine Workers of America Welfare and Retirement Fund, Washington, D. C.

Tuesday, June 28

9:00 A.M. — 12:00 Noon — THE NEED FOR REHABILITATION IN INDUSTRY, W. Scott Allan, Assistant Vice President, Liberty Mutual Insurance Company, Boston

MAINTAINING THE EFFICIENCY OF THE WORKER IN INDUSTRY, Jessie Wright, M.D., Associate Professor, Department of Physical Medicine and Rehabilitation, University of Pittsburgh

2:00 P.M. — 5:00 P.M. — **House of Delegates**

7:00 P.M. — 10:00 P.M. — **Film Theater**

Wednesday, June 29

9:00 A.M. — 12:00 Noon — HUMAN FACTORS ENGINEERING: WHAT IS IT?, Harwood S. Belding, Ph.D., Professor of Environmental Physiology, Graduate School of Public Health, University of Pittsburgh

Wednesday, June 29

9:00 A.M. — 12:00 Noon

THE ROLE OF THE PHYSICAL THERAPIST IN HUMAN FACTORS ENGINEERING, Pauline Potts, Capt., USAF Physical Therapist, USAF Hospital, USAF Aerospace Medical Center (ATC), Lackland AFB, Texas

THE ENERGY COSTS OF WORK, Amasa B. Ford, M.D., Director of the Rehabilitation and Teaching Program, and Senior Instructor in Medicine, Western Reserve University, Cleveland

2:00 P.M. — 5:00 P.M. **House of Delegates**

6:00 P.M. — 7:00 P.M. Reception for Board of Directors

7:30 P.M. **Annual Banquet**

Thursday, June 30

9:00 A.M. — 12:00 Noon *Concurrent Sessions*

ASSESSMENT OF FUNCTION—Physical therapists will discuss various testing methods. Physicians will observe and report at a general session

Session A

MANUAL MUSCLE TESTS, Jean Bailey, Chief Physical Therapist, Milwaukee County General Hospital, Milwaukee

GROSS MUSCLE TESTS, Margaret Camp, Chief Physical Therapist, Waterbury Hospital, Waterbury, Conn.

ACTIVITY TESTS, Maxine Schuldt, Supervisor of Physical Therapy, Curative Workshop of Milwaukee, Inc.

Physician Observers: Frederick W. R. Koenig, M.D., Chief of Orthopedics, South Side Hospital and St. Joseph's Hospital, Pittsburgh; Paul Kost, M.D., Director of Physical Medicine and Rehabilitation, Veterans Administration Hospital, Pittsburgh

Session B

MOBILITY TESTS, Hildegarde Myers, Chief Physical Therapist, Rehabilitation Institute of Chicago

ELECTRICAL TESTS, Edna Dillon, Major, AMSC, Chief, Physical Therapy Section, Fitzsimons General Hospital, Denver

CIRCULATORY AND RESPIRATORY TESTS, Dorothy Briggs, Fellow of The National Foundation, Department of Physiology, University of Wisconsin

Physician Observers: Harry Fisher, M.D., Orthopedic Surgeon, Presbyterian Hospital, Montefiore Hospital, and St. Francis Hospital, Pittsburgh, and D. T. Watson Home for Crippled Children, Leetsdale; Robert J. Halen, M.D., Works Physician, Pittsburgh Works, Jones and Laughlin Steel Corporation, Pittsburgh

11:00 A.M. — 12:00 Noon *General Session*

THE ROLE OF THE PHYSICAL THERAPIST IN THE EVALUATION OF PHYSICAL IMPAIRMENT, Physician Observers: Dr. Koenig, Dr. Kost, Dr. Fisher, and Dr. Halen

2:30 P.M. — 5:00 P.M. *Concurrent Sessions*—Original Papers

Session A

SELECTIVE STRETCHING FOR THE PARALYTIC PATIENT, Hazel V. Adkins, Viola Robins, Frances Eckland, Jacquelin Perry, M.D., and Vernon L. Nickel, M.D.; The Respiratory and Rehabilitation Center for Poliomyelitis, Rancho Los Amigos Hospital, Downey; and The Department of Orthopedic Surgery, College of Medical Evangelists, Los Angeles

MUSCLE TESTING: RELIABILITY IN CLINICAL USE, Dorothy M. Iddings, Laura K. Smith, and Paul R. Harrington, M.D.; Texas Institute for Rehabilitation and Research, Houston

PATELLAR TENDON BEARING-CUFF SUSPENSION BELOW-KNEE PROSTHESIS, Bernard R. Strohm and Lorraine Ogg; Department of Physical Therapy, University of California Medical Center, Los Angeles

2:30 P.M. — 5:00 P.M. *Concurrent Sessions*—Original Papers

Session B

HOME EVALUATION PROCEDURES, Beth Fowles, Helen Stewart, and Susan P. Mahan; Department of Physical Therapy, Highland View, Cuyahoga County Hospital, Cleveland

RAPID REHABILITATION OF THE INJURED BACK IN AN INDUSTRIAL ENVIRONMENT, Daniel R. Bartholomew and Walter G. Vernon, M.D.; Lukens Steel Company, Coatesville, Pennsylvania

PHYSICAL THERAPY IN THE TREATMENT OF DECOMPRESSION SICKNESS WITH SPINAL CORD INVOLVEMENT, Lieutenant Joyce McDowell, AMSC; and Major Amelia D. Amizich, AMSC; Physical Therapy Clinic, Tripler U. S. Army Hospital, Honolulu

7:30 P.M. — 10:30 P.M. Chapter Workshop
Theme: Leadership

Friday, July 1

9:00 A.M. — 10:30 A.M. *Concurrent Sessions*

PHYSICAL THERAPY IN TRAUMA AND DISEASE

Session A

SPRAINS, STRAINS AND CONTUSIONS, Barbara Peterson, Director, Department of Physical Therapy, Henry Ford Hospital, Detroit

BURNS, James Roodhouse, Chief Physical Therapist, Institute of Physical Medicine and Rehabilitation, Peoria, Ill.

ARTHRITIC CONDITIONS, Raymond Rabideau, Technical Director, Iron Range Rehabilitation Center, Virginia, Minn.

Session B

SOFT TISSUE SYNDROMES, Margaret Wells, Head of Physical Therapy, Allen-Bradley Company, Milwaukee

HAND INJURIES, Wesley Fegely, Physical Therapist, Campbell Soup Company, Camden, N. J.

PERIPHERAL NERVE LESIONS, Robert Hickock, Coordinator, Division of Rehabilitation, The Jewish Hospital, St. Louis

Session C

LOW BACK DISABILITIES, Nicholas Lorusso, Physical Therapist, Ochsner Foundation Hospital, New Orleans

SPINAL CORD INJURIES, Marguerite C. Rukse, Chief of Physical Therapy, Man Memorial Hospital, Man, West Virginia

FRACTURES AND DISLOCATIONS, Katherine Leary, Supervisor of Physical Therapy, The Rehabilitation Center, Boston

11:00 A.M. — 12:00 Noon *General Session*

THE ROLE OF THE PHYSICAL THERAPIST IN THE INDUSTRIAL PICTURE, Adolph G. Kammer, M.D., Professor, Head of Department of Occupational Health, Graduate School of Public Health, University of Pittsburgh

2:00 P.M. — 5:00 P.M. Program—Tours to Columbia Hospital, Home for Crippled Children, St. Francis General Hospital, South Side Medical Building, and University of Pittsburgh Medical Center in Pittsburgh; Harmarville Rehabilitation Center in Harmarville; and the D. T. Watson Home for Crippled Children and the School of Physiatrics in Leetsdale

Conference Facts

Hotel

The Penn-Sheraton, facing the newly developed Mellon Square.

Rates

Single rooms	$ 8.50 to $14.00
Double bedded room for two, per person	$ 6.68 to $ 8.75
Double bedded room for one person	$ 9.85 to $14.00
Twin bedded room for two, per person	$ 6.92 to $13.00
Twin bedded room for one person	$ 9.85 to $22.00
Parlor and twin bedroom	$27.00 to $40.00
Parlor and two twin bedrooms	$57.00 to $60.00

All rates subject to 4 per cent state sales tax.
Third person in room, $3.00 additional
Family plan, children under 14 free

Hotel Reservations

Send your reservations to the Penn-Sheraton at least 30 days in advance. The Hotel will acknowledge reservations at the nearest available rate if a room at the requested rate is not available. Persons rooming together should send in only one reservation card indicating the number of persons sharing accommodations. *Note:* For your convenience a reservation card is included in your dues notice.

Registration

Active, inactive and foreign probationary members	$6.00
Student members	$2.00
Nonmember physical therapy students	$4.00
Nonmember graduates of approved schools	$15.00
Members of physical therapy organizations affiliated with the World Confederation for Physical Therapy	
Visitors	$6.00
Residents of this country	$15.00

All persons registering will be required to present professional identification.

For the convenience of all, members are requested to register in *advance*. Otherwise, you

must present your membership card at the Conference registration desk.

Allied professional persons are invited to attend by presentation of credentials and at a courtesy fee of $2.00

Complimentary registration is cordially extended to physicians and administrators upon presentation of credentials.

Exhibits

Commercial exhibits: Applications should be directed to Gordon M. Marshall, Exhibits Manager, 30 West Washington Street, Chicago 2.

Scientific exhibits: A limited number of scientific exhibits are accepted and assigned by the American Physical Therapy Association.

Social Events

Good cheer and fellowship for all! On Sunday evening the Host Chapter will welcome you at "Pa Pitt's Melting Pot." Afterwards there will be a buffet—"Pa Pitt Picnic"—and square dancing. Wednesday evening is set aside for the traditional and informal banquet with entertainment scaled to your enjoyment. Register in advance and take advantage of the combined price of $12.00 for these two highlighted events. If tickets are purchased separately, prices are: Buffet $6.00; Banquet $7.50

Section on Education

Chairman
MARGARET BRYCE

Vice Chairman
ELEANOR M. FLANAGAN

Secretary
ANNA J. JANETT

Treasurer
MILDRED HEAP

Sunday, June 26
8:00 A.M. — 5:00 P.M.

8:00 A.M. Membership dues received

9:00 A.M. Introduction
Report of the Exploratory Session on Graduate Education—Mildred Wood
The Role of Graduate Education in the Growth of Physical Therapy as a Profession—Dean Wesley G. Hutchinson, School of Allied Medical Professions, University of Pennsylvania
How Undergraduate Methods and Attitudes in Teaching Can Set the Climate for Graduate Study—Dr. Howard G. Miller, Head, Department of Psychology, North Carolina State College
Discussion

12:30 P.M. Luncheon and business meeting

2:00 P.M. Graduate Education for Physical Therapists—Reflections on Three Areas of Interest
Graduate Study in Physical Therapy—Norma Jean Ewan
Graduate Study in the Basic Sciences (Anatomy and Physiology)—James Griffin, Ph.D.
Graduate Study in Psychology—Margot Trimble
Discussion—all speakers, with questions from the floor

Self Employed Section

Chairman
ALMA A. MAGA

Vice Chairman
ROYCE P. NOLAND

Treasurer
GILBERT GIMBEL

Corresponding Secretary
JOSEPH SAVAN

Recording Secretary
JEANNE S. GEREN

Sunday, June 26
8:45 A.M. — 5:00 P.M.

8:45 A.M. Registration

9:30 A.M. Call To Order—Welcome
Development of a Physical Therapy Facility
Three members will present original papers.

1:30 P.M. A Physical Therapy Department at the Core of the Medical Community—Film
Business Meeting

Public Health Section

Chairman
HELEN H. VAUGHN

Vice Chairman
MARIAN H. PRATT

Secretary
ANNA L. SWEELEY

Treasurer
LOIS M. MITCHELL

Sunday, June 26
9:00 A.M. — 5:00 P.M.

9:00 A.M. Registration

9:30 A.M. — 12:00 Noon Opening Address: Jack Sabloff, M.D., Division of Maternal and Child Health, Pennsylvania State Department of Health, Harrisburg
Clinical Affiliations of Student Physical Therapists in Public Health Programs
Margaret L. Moore, Director of Curriculum in Physical Therapy, University of North Carolina, Chapel Hill
Anne Parrish, Physical Therapy Consultant, North Carolina State Board of Health, Raleigh

2:00 P.M. Panel Discussion: Physical Therapy in Schools for the Handicapped
Gertrude Bartlett, Frederick J. Gaenslen School, Milwaukee
Rebecca Hastings, Baer School, Baltimore
Vera Keating, Widener Memorial School, Philadelphia
Allan Quail, Crippled Children's Hospital and School, Sioux Falls

3:30 P.M. Business Meeting

Reserve Officers of the Army Can Earn Credit in Pittsburgh

The Commanding General, U. S. Continental Army Command, has approved the awarding of retirement point credits for Army Reserve Officers who attend specified sessions of the American Physical Therapy Association Conference in Pittsburgh, Pennsylvania in June.

Provision will be made for Reservists to register in the lobby of the Penn-Sheraton Hotel.

Military Physical Therapy Symposium
Military Section of the American Physical Therapy Association

Penn-Sheraton Hotel — Pittsburgh, Pennsylvania

26 June—1 July 1960

Military Chairman—Major Mary E. Frazee, AMSC

The following sessions, by virtue of their military educational value, are included in the symposium and are authorized as military training assemblies. Reserve officers of the Army are therefore eligible to earn training and retirement point credits for attendance at the sessions indicated below providing such attendance at any session is for a period of not less than two hours and registration at each session is accomplished with the individual designated by the Commanding General to accomplish such registration. Not more than one credit can be granted for any single calendar day:

PROGRAM SESSIONS

Monday, 27 June 1960 1400-1700

The Role of the Employer in the Health of the Worker

Tuesday, 28 June 1960 0900-1200

The Need for Rehabilitation in Industry
Maintaining the Health of the Worker

Wednesday, 29 June 1960 0900-1200

Human Factors Engineering: What Is It?
The Role of the Physical Therapist in Human Factors Engineering
Fatigue

Thursday, 30 June 1960 0900-1200

Concurrent Sessions:
Assessment of Function
Manual Muscle Tests, Gross Muscle Tests, Activity Tests
Mobility Tests, Electrical Tests, Circulatory and Respiratory Tests
The Role of the Physical Therapist in the Evaluation of Physical Impairment

Friday, 1 July 1960 0900-1200

Concurrent Sessions:
Physical Therapy for Trauma and Disease
Sprains, Strains, Contusions
Burns
Arthritic Conditions
Low Back Disabilities, Spinal Cord Injuries, Fractures, and Dislocations
The Role of the Physical Therapist in the Industrial Picture

Pittsburgh Social Events

Pa Pitt's Melting Pot — Pa Pitt Picnic — Square Dance

37th Annual Banquet

Pa Pitt, through his caricature by cartoonist Cy Hungerford of the *Pittsburgh Post Gazette*, has greeted you in the *Review* since January. On Sunday evening, June 26, in the Pittsburgh Room of the Penn-Sheraton Hotel, Pa Pitt himself will welcome you to his "Melting Pot"; Pennsylvania Chapter members will assist Pa as host—after all, Pa is now 202 years old! Even so, he is mighty alert and has heard of the wonderful time APTA members enjoyed during Minnesota Chapter's reception—Tivoli—last June. He wished he could have been there and hopes that those who were will join the fun at his "Melting Pot."

Pa heard about the Smorgasbord at the Hotel Leamington and says he won't be outdone! So he's planned a picnic which, rain or shine, will be held in the Ballroom of the Penn-Sheraton. Pa is famous for his bountiful picnics, tables laden with the best at the Gateway to the West! During Pa's Picnic the "Steel City Four" will begin the round of singing; everyone will sing; and the "barbershop" quartets from chapters and districts will compete. Pa is sure that after all members have met in his "Melting Pot" the competition will be keen. Pa will award the prize to the winning chapter or district. If you haven't formed a quartet, now is the time!

The evening will be "squared away" with a square dance so wear your picnic clothes, blouses and skirts, slacks and shirts, dungarees or whatever and join the whirl!

On Wednesday evening the 37th Annual Banquet will be preceded by the Reception for the Board of Directors. All members and guests are welcome! To entertain you during the Banquet, The Duquesne University Tamburitzans, America's finest collegiate performing group, will sing, play, and dance.

Again as in Seattle and in Minneapolis, two wonderful evenings will be available to all attending Conference. The combined rate for the Picnic and the Banquet is $12.50. Pennsylvania Chapter through its Western District will be the host with the most at the Melting Pot. Send your checks and reservation forms now for the Pa Pitt Picnic and Annual Banquet; two complete evenings of gaiety and good food will be yours!

Conference Speakers

Adolph G. Kammer, M.D., Professor and Head of the Department of Occupational Health, Graduate School of Public Health, University of Pittsburgh, received his bachelor of arts and master of science degrees from the University of Wisconsin. He received the degree of doctor of medicine from the University of Pennsylvania in 1928. After four years of general practice of medicine he became associated with industry, and has served in the medical departments of Montreal Mining Company, Wisconsin; Inland Steel Company, Chicago; and Carbide and Carbon Chemicals Company, now Union Carbide Nuclear Company. He serves as medical consultant to: Union Carbide Nuclear Company, Westinghouse Electric Corporation, and Pennsylvania Railroad Company. He is also a consultant in occupational diseases to the U. S. Public Health Service. Since October 1949 Dr. Kammer's principal interest has been the development of teaching and research programs in occupational health at the University of Pittsburgh. Author of 25 papers in the field of occupational health, Dr. Kammer is the editor of the *Journal of Occupational Medicine*. He is a trustee of the American Board of Preventive Medicine, holds memberships in various medical associations, and is a past president of the Industrial Medical Association. The latter organization in 1958 awarded Dr. Kammer the Knudsen Award for outstanding performance in the field of occupational medicine. The scientific sessions of the Conference program will conclude with Dr. Kammer speaking on "The Role of the Physical Therapist in the Industrial Picture."

Amasa B. Ford, M.D., is the Director of the Rehabilitation Teaching Program, and Senior

Conference speakers

Instructor in Medicine, Western Reserve University School of Medicine, Cleveland. Dr. Ford received his education at Yale University and Harvard Medical School. Following internship and residency at the Massachusetts General Hospital and University Hospitals of Cleveland, he became assistant physician at Benjamin Rose Hospital, a chronic disease unit of University Hospital, Cleveland. He has participated in work of the Cleveland Work Classification Clinic. Dr. Ford has collaborated on studies of energy expenditure and physiologic responses of normal and cardiac factory workers. The author of 12 scientific articles, his most recent is "The Estimation of Energy Expenditure from Pulmonary Ventilation" to be published in the *Journal of Applied Physiology*. Dr. Ford will speak on "The Energy Cost of Work," a subject of great interest to physical therapists.

Edna L. Dillon, Major, AMSC, Chief of the Physical Therapy Clinic, Fitzsimons General Hospital, Denver, received a bachelor of physical education degree from American College of Physical Education (now a part of De Paul University), a bachelor of philosophy degree from De Paul University, and in 1956 the master of arts from University of Southern California. Major Dillon has served at Percy Jones Army Hospital, Battle Creek, Michigan; Fitzsimons General Hospital, Denver; Walter Reed Army Hospital, Washington; and overseas at Stuttgart, Germany; and upon her return to the States, at DeWitt Army Hospital. She is a member of the Association of Military Surgeons. During Session B, Thursday morning, Major Dillon will discuss "Electrical Testing."

Robert J. Hickok, Coordinator, Division of Rehabilitation, Jewish Hospital of St. Louis, holds an appointment of Lecturer on Therapeutic Exercise at the Washington University School of Medicine, Department of Physical Therapy. Mr. Hickok received a bachelor of science degree in physical therapy at Washington University in 1953. Since then he has attended the upper extremity and below knee prosthetics courses at the University of California at Los Angeles and the above knee prosthetics course at New York University. Mr. Hickok served four years with the U. S. Navy. Co-author of three articles published in the *Physical Therapy Review*, Mr. Hickok will discuss "Physical Therapy as Related to Peripheral Nerve Lesions" during the Friday morning session.

Dorothy I. Briggs, a Fellow of The National Foundation, is a graduate student in the Department of Physiology, University of Wisconsin. Miss Briggs was awarded a certificate in physical therapy by the University of Toronto and for several years served as a staff physical therapist at the Workman's Compensation Board Clinic in Toronto. In 1949 and 1951 Miss Briggs earned the bachelor of science and master of science degrees at the University of Wisconsin. She has held positions as instructor and assistant professor in the school of physical therapy at the University. Miss Briggs is a member of the honorary women's scientific fraternity, Sigma Delta Epsilon. Closely related to her conference topic is Miss Briggs' 1958 *Review* article "The Influence of the Oscillometer Test on the Histamine Wheal Test." During the concurrent session Thursday morning Miss Briggs will speak on "Tests and Measurements of Circulatory and Respiratory Function."

Nicholas D. Lorusso, Head, Physical Therapy Department, Ochsner Foundation Hospital, New Orleans, received his prephysical therapy education at Rutgers University. A certificate graduate of the New York University School of Education, Physical Therapy Curriculum, Mr. Lorusso has also received a master of arts degree at New York University. His previous positions have included two years with the Army Medical Service Corps, and staff positions at St. Elizabeth Hospital, Appelton, Wisconsin; Institute of Physical Medicine and Rehabilitation, New York; Ochsner Foundation Hospital, New Orleans; and Georgia Warm Springs Foundation, Warm Springs. Mr. Lorusso is a member of the honorary society Phi Beta Kappa. On Friday morning in concurrent Session C, Mr. Lorusso will present a "Discussion on the Use of Physical Therapy in Acute or Chronic Low Back Strain."

Raymond J. Rabideau is the Technical Director, Iron Range Rehabilitation Center, Virginia, Minnesota. A graduate nurse, Mr. Rabideau received his physical therapy education at the University of Minnesota. His previous experience has been as Chief Physical Therapist, St. Louis County Sanitarium; Instructor, School of Physical Therapy, University of Minnesota; and Second Lieutenant, Medical Administration Corps, U. S. Army. Mr. Rabideau co-authored an article, "Evaluation of Extension of Hip" which appeared in the *Archives of Physical Medicine and Rehabilitation.* Mr. Rabideau will present "Present Day Management of Arthritis" on Friday morning during Session A.

Recreate in Pennsylvania

By Gilbert Love
Pittsburgh Press Staff Writer

When you stop to think about it, the phenomena that Alice encountered in Wonderland weren't so much. Oh, that shrinking and growing trick was pretty good. But you take a section of our own country—Pennsylvania—and put a modern Alice in it with the power to move hither and yon at will, and she would find it pretty fascinating, not to say mystifying at times.

There is, for example, the Ice Mine at Coudersport. Alice would agree that such a mine is intriguing enough, but this one adds to its charm by forming ice only in summer.

After her experience in Wonderland, Alice would find herself right at home in Penn's Cave, east of State College, where visitors to this cave travel exclusively by boat.

On the campus of the University of Pittsburgh she would find a school building 42 stories high. If she went from classroom to classroom on the ground floor she would find herself going from England to France and so on to far-off China, through 20 changes of scene. "Nationality Rooms," she would hear someone say.

At Ambridge, west of Pittsburgh, she could tour the buildings of Old Economy. Here, a century ago lived a colony of men and women who shared the wealth and the work. They became so prosperous that, among other things, they financed the building of the Pittsburgh and Lake Erie Railroad.

As Alice journeyed eastward she might pause at the Baker Mansion in Altoona. Here she would see working models of the Portage Railroad, one of the strangest transportation devices ever thought up by man. Passengers and freight from the east were taken on canal boats to the foot of the mountains, where the canal boats were put on cars and pulled over the ridges by cables attached to stationary steam engines.

At Cornwall she would see a vast hole in the ground where men have been mining iron ore since the years of the Revolutionary War. At nearby Ephrata she would stoop to enter the doorways (no shrinking potion being available here) of a strange monastic order, no longer in existence.

She would discover that she was in the homeland of the pretzel industry. In the town of Lititz she could enter the first pretzel factory and watch skilled workers making the strange little knots by hand. If she were hungry, she could go to the town of Hershey and breathe deeply of the chocolate-scented air.

Seeing people dressed in black and traveling in black carriages, Alice would ask what manner of persons they might be. She would be told that they belong to the Amish sect, most strict and unusual of a large group of Eastern Pennsylvanians called "Pennsylvania Dutch." She would find that they have their own language, and have little to do with the modern world, but that their farms are as well kept as gardens. Cigar leaf tobacco is one of their chief products.

Near Gettysburg, Alice might become interested in the points of historic interest in Pennsylvania. At Gettysburg she could tour the terrain on which was fought the greatest battle ever known by this country. She also could visit a number of interesting museums, including one run by "Charley Weaver" of television fame.

Journeying eastward, Alice would tour the well kept grounds of Valley Forge, where Washington's troops spent the terrible winter of 1777-78. Then she would go on into Philadelphia to see the Liberty Bell, Independence Hall, the Betsy Ross House, and other reminders of this country's birth.

Flitting northwestward, Alice would pause at the site of the world's first oil well, at the edge of Titusville. Back in Pittsburgh again, she would find among the aluminum and stainless steel skyscrapers the rough Blockhouse of old Fort Pitt, only structure remaining from the period when the British and French fought over this place for the control of the interior of America.

In her dashes about the state, Alice would have been impressed by its scenery. She would like the forested mountain ridges, with lush valleys between them, sweeping from northeast to southwest across the state. She would be awed by such scenic wonders as the Delaware Water Gap, near Stroudsburg, the Pennsylvania Grand Canyon, near Wellsboro, and the 400 year old trees in Cook Forest.

If our Alice was an outdoor girl, she would find much to interest her in Pennsylvania. It would please her to learn that half of Pennsylvania still is forest, and that an eighth of all land in the state is owned by the public—in State forests, parks and game lands, and huge Allegheny National Forest.

She might be surprised to find that Penn's

Woods are inhabited by more wild life today than in the days of William Penn.

Alice might like to swim in fresh water surf from Presque Isle Peninsula, a State park that runs far out into Lake Erie, or just lie on its eight-mile-long beach.

She might enjoy riding a horse or bicycle in Cook Forest, which is 100 miles north of Pittsburgh.

She might want to rent a boat and go fishing at a State park with a big lake, like Shawnee or Laurel Hill, east of Pittsburgh.

For a picnic, she would have her choice of 70 State parks, a number of spots in Allegheny National Forest, plus county and municipal parks. She could pitch a tent, or park a trailer, in parks that have such "municipal services" as garbage collection and police protection.

If Alice wanted a less rustic holiday, she could go to one of the many resort hotels in the Pocono Mountains of northeastern Pennsylvania, the Laurel Highlands of southwestern Pennsylvania, and elsewhere. Most of them provide a full recreation program as well as food and lodging.

Perhaps our Alice is a gal with some special interest. Maybe she likes to go around inspecting production processes. Well, Pennsylvania textile, glass, steel, and food factories welcome visitors under certain conditions. She can get a free leaflet on this subject by writing the Vacation and Travel Bureau, State Department of Commerce, Harrisburg.

She might be interested in antiques, or flowers, or music. Pennsylvania has many special events connected with such subjects, and the Vacation and Travel Bureau has a calendar of events that should prove helpful. It also has a folder on State parks, and one on the fairs that start around midsummer and are held here and there until frost, and one listing opportunities for farm vacations in the southeastern part of the state.

If Alice is interested in trying the "seven sweets and seven sours" and other features of Pennsylvania Dutch cooking, one good place would be in the dining rooms of the Brunswick Hotel in Lancaster. Another would be the old-fashioned Shartlesville Hotel on U.S. Route 22 about halfway between Allentown and Harrisburg.

Most human beings can't flit around like a supernatural Alice; however, with the aid of that twentieth century magic carpet, the auto, we do fairly well. A circle tour around Pennsylvania will take in most of Alice's wonders.

Let's start out westward from Philadelphia. Since it's a circle, persons coming from any direction can pick it up at one point or another. So—

Go west on State Route 23 through some of Philadelphia's most beautiful suburbs and Valley Forge State Park. Beyond the latter you'll start rolling through the rich Pennsylvania Dutch country, which may remind you of the finest farming regions of Germany.

Courtesy of the Chamber of Commerce of Pittsburgh

McConnell's Mill

At Lancaser continue west on U.S. Route 30. You'll go through York, an industrial city that briefly was the capital of the United States, and Gettysburg, and Chambersburg. At this point, if mountain driving bothers you, go up to the Pennsylvania Turnpike. If not, you'll find Route 30 over the Alleghenies a very interesting road.

Either way you'll get to Pittsburgh. From there you can describe either a flat or a sweeping arc in returning to Philadelphia, depending on your interests and the amount of time at your disposal.

For the flatter arc take U.S. Route 22 over the mountains to Harrisburg. The terrain isn't quite as rugged as on Route 30, farther south, but it will give you some breath-taking vistas. To view scenes connected with the great Johnstown Flood of 1889, in which 2,200 persons perished, go south a dozen miles from Armagh, then return to 22. Similarly, to visit Altoona, with its great railroad car shops and Baker Mansion museum, jog north from Duncansville.

From Harrisburg take U.S. 322 east through Hershey, which is well worth a stop, Cornwall,

and Ephrata. At Brickerville you could go south four miles to Lititz and the aforementioned pretzel factory. From Ephrata you could continue into Philadelphia via 322 and 30, or you could go left on 222 to the Turnpike and speed eastward.

But, suppose you decide to take the long way back from Pittsburgh. Do this—

Go north on State Route 8 to Titusville. After viewing Drake Well Park and other relics of the birth of the petroleum industry, go east and north on State 27, then east across the top of the state on U.S. Route 6. This will take you through part of the Allegheny National Forest, plus Coudersport (Ice Mine, remember?) and Wellsboro (Grand Canyon). It also will show you some grand scenery. Southeast of Towanda markers will direct your gaze across the Susquehanna River to all that is left of Asylum, the log city that French Royalists built in the wilderness as a refuge from Marie Antoinette.

At Scranton (somewhere along here you'll learn that this section of Pennsylvania produces 99 44/100 per cent of all anthracite coal) switch to U.S. Route 611. It will take you through or near some of the best of the Pocono resorts. At Stroudsburg you'll see the Delaware Water Gap, then follow the Delaware River and sometimes the old Pennsylvania Canal. After going through famed Bucks County, where many a farmhouse is occupied by folks from the city, you'll be back in Philadelphia.

Time to Rehearse for Pa Pitt's Songfest

Barbershop Quartet Competition

Hi P.T.'s young and gay—
Ope your mouths and gently bray
Lift your spirits and don't be thrifty;
Come to Pittsburgh in 1960.

Sing—sing—sing

Leadership: Theme of Chapter Workshop

On Thursday evening, June 30, from 7:30 P.M. until 10:00 P.M. chapter and district officers and designated representatives will participate in a program designed by the Advisory Committee on Chapter Activities. The need to develop qualities of leadership and responsibility has been felt by many officers; members presently serving their Association wish to improve their knowledge of parliamentary procedure. Fulfilling these expressed needs will be the major goal of the 1960 Workshop. All members are welcome to attend—you may be elected to serve your chapter or district next!

Alumni Meetings at Conference

Monday, June 27

University of Southern California "Mixer"—5:00 P.M.–7:00 P.M.
Ohio State University Alumni "Mixer"—5:00 P.M.–7:00 P.M.
University of Connecticut Alumni—6:00 P.M.–9:00 P.M.

Wednesday, June 29

Duke University Luncheon—Noon
University of Iowa Luncheon—Noon
University of Wisconsin Luncheon—Noon
Washington University and Barnes Hospital—after Banquet

The Steel City Four will lead the way for the competition among chapter and district quartets during the Pa Pitt Picnic on Sunday evening. Barbershop quartets in Pittsburgh are popular, entertaining, and contribute frequently to community affairs. The SPEBSQSA, Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America, is a nationwide organization which has helped to preserve not only this kind of group singing but amateur entertainment on a "do-it-yourself" basis.

Association News

Mrs. Doris Spicer Cook, of Beaver Dam, Wisconsin, died on Dec. 31, 1959. She received her physical therapy education at the D. T. Watson School of Physiotherapy in 1940 and became a member of the Association at that time. Mrs. Cook previously held membership in the Iowa and Illinois Chapters and at the time of her death was an inactive member of the Wisconsin Chapter.

Agnes S. Nolander, of Saginaw, Michigan, passed away on Jan. 19, 1960 after undergoing surgery. A graduate of Northwestern University in 1929, Miss Nolander became a member of the Association in the same year. She held positions in Chicago; Keokuk, Iowa; and since 1956, at the Handley School, Saginaw. Miss Nolander, from 1933 to 1935, served as Secretary of the former Chicago Chapter and at the time of her death was an active member of the Eastern District, Michigan Chapter.

Lucy Blair Visits Army Surgeon General's Office

Lucy Blair, Consultant in Physical Therapy to the Army Surgeon General and Acting Executive Director of the American Physical Therapy Association, recently visited The Surgeon General's Office in Washington, D. C., on April 5.

During her one-day visit, Miss Blair consulted with Lt. Col. Barbara R. Friz, AMSC, Chief of the Physical Therapist Section of the Army Medical Specialist Corps, on Army and civilian policies relating to physical therapy. Miss Blair also toured the Physical Therapy Clinic at Walter Reed Army Medical Center. Miss Blair has been the Army Surgeon General's Physical Therapy consultant since 1958.

Five State Educational Seminar

Idaho Chapter will be host to Nevada, Montana, Utah, and Wyoming Chapters at Sun Valley on June 3 and 4. The major speakers will be Robert McKean, M.D., of Boise, and Margaret Rood, of the University of Southern California. Dr. McKean, a pediatrician, will discuss neurologic diseases of children; and Margaret Rood will present technics of treatment by lecture and demonstration.

Marriages

Roberta Abbey, of St. Paul, Minn., to John Mulhern, St. Paul.
Kathryn C. Callinan, of Norristown, Pa., to Michael P. Simpson, Philadelphia, Pa.
Marian S. Campbell, of Brooklyn, N. Y., to Eugenio Arroyo, Jamaica, N. Y.
Anna Cirone, of Brooklyn, N. Y., now Mrs. Anna C. Cirulnick, Brooklyn.
Verna A. Fisher, of Chicago, Ill., now Mrs. Verna F. Sloma, Blue Island, Ill.
Diana Garceau, of Chicago, Ill., now Mrs. Diana G. Scamman, Chicago.
Mary L. Glenn, of Wilmington, Dela., to Thomas Kinsey, Jr., Wilmington.
Jan Haltom, of Cincinnati, Ohio, to E. L. Plyler, Cincinnati.
Paula Jones, of Salt Lake City, Utah, now Mrs. Paula J. Whyte, Salt Lake City.
Phyllis M. Kurt, of Seattle, Wash., to LeRoy J. Carroll, Seattle.
Elaine M. Phillips, of Richmond, Va., to H. Fleet Powell, Jr., Richmond.
Barbara Poag, of New York, N. Y., now Mrs. Barbara P. Dantzler, New York.
Dorothy Rice, of Richmond, Va., now Mrs. Dorothy R. Clark, Richmond.
Nannette Starling, of Raleigh, N. C., now Mrs. Nannette S. Craig, Raleigh.
Joan Stopielo, of Albany, N. Y., now Mrs. Joan S. Danforth, Albany.
Katherine A. Suydam, of Boston, Mass., to H. David Hall, Birmingham, Ala.
Jeanine Thompson, of Galveston, Tex., to Leslie H. Nash, LaMarque, Tex.

Chapter News

Southern California

Recently two neurosurgeons spoke on the anterior approach for the removal of a cervical disk and fusion of the vertebrae. The presentation was illustrated by slides and a film.

Florida — West Coast District

The physical treatment of disabilities complicated by impaired sensation, as presented by a physician at the district meeting, has been reported in the District's newsletter.

Illinois

A guest night for eligible nonmembers of the APTA was held in March. "Physical Therapy

Procedures as Observed in Europe with Emphasis on Cerebral Palsy" was the subject of this meeting sponsored by the Chapter, United Cerebral Palsy, and Northwestern University.

The "Illini News" enumerates recruitment contacts that enthusiastic members have made to student nurses, women's auxiliaries of hospital associations, church young peoples' groups, P.T.A., high school students, and hospital employees.

Association Members Awarded Legion Of Merit

Lt. Col. Harriet S. Lee, Lt. Col. Agnes P. Snyder, and Lt. Col. Dorothy G. Tipton in March, 1960, received the Legion of Merit for "exceptionally meritorious conduct in the performance of outstanding service" during their notable professional careers. Colonel Lee served the Association as seventeenth President from 1952-54 and achieved the highest respect of all members. Colonel Snyder, our twentieth President, although retired from active duty in the AMSC, continues to serve in the highest position of our professional organization until June, 1961. Colonel Tipton during her assignments to many posts in the United States and Hawaii has consistently supported the Association through our chapters.

Our Association is pleased for and extremely proud of these members who have been so honored. The citations which follow denote the attitudes of service above self and personal qualities worthy of emulation by all physical therapists.

The President of the United States of America, authorized by Act of Congress July 20, 1942, has awarded the Legion of Merit to

Lieutenant Colonel Harriet S. Lee, U S A

for exceptionally meritorious conduct in the performance of outstanding services:

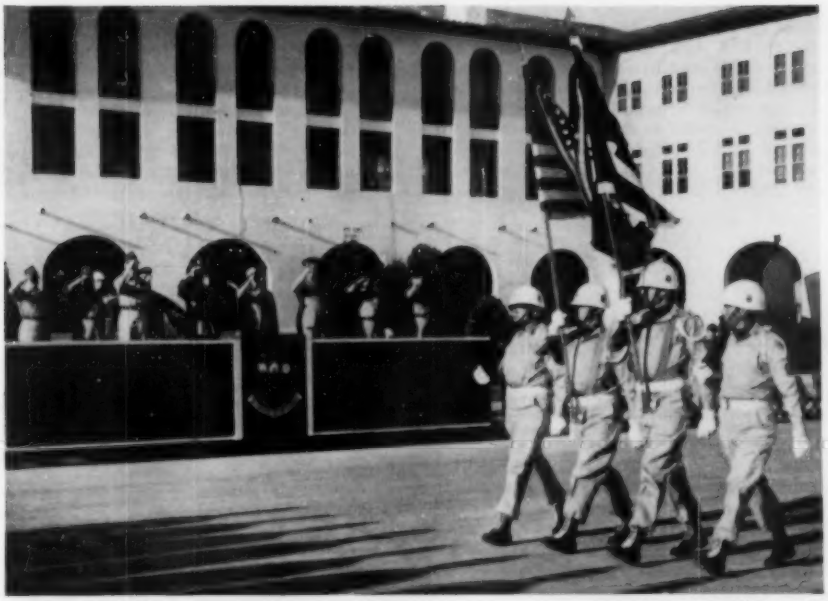
Lt. Col. Harriet S. Lee, Army Medical Specialist Corps, distinguished herself by exceptionally meritorious conduct in the performance of outstanding service in successive positions of importance during the period April, 1952 to March, 1960. As Assistant Chief, Women's Medical Specialist Corps and Chief, Physical Therapy Branch, Physical Medicine Consultants Division, Office of The Surgeon General, from April, 1952 to October, 1954, Colonel Lee's skilled professional ability, energetic resourcefulness and superior leadership were thoroughly manifested in the excellent manner in which she supervised physical therapy practices and coordinated and directed the training of physical therapy officers and enlisted technicians. Her personal aggressiveness, analytical ability, and mature judgment were constantly evidenced and resulted in the timely and successful resolution of many diverse and complex operational problems in that highly specialized area. While Chief, Army Medical Specialist Corps, Office of The Surgeon General, from November, 1954, to October, 1958, Colonel Lee's administrative excellence and managerial ability advanced progressive measures which developed and promoted educational programs that immeasurably improved the over-all effectiveness of that Corps. Under her valuable guidance, the establishment of the Institute for Officers of the Army Medical Specialist Corps was accomplished and made material contributions to the administration and management of all activities related to dietetics and physical and occupational therapy. Her keen recognition of the need to improve career opportunities for officers in the Army Medical Specialist Corps resulted in legislation enacted by Congress for that purpose as the Nurse and Medical Specialist Act of 1957. Colonel Lee culminated her brilliant career as Project Officer to the Army Medical Service Historical Unit, Walter Reed Army Medical Center, and was responsible for the development of a manuscript concerning the history of dietitians and physical and occupational therapists in the Army Medical Service. Her outstanding work in this assignment elicited the expressed laudatory comment of her superior, and earned for her the high regard and admiration of all associated with her in this effort. Colonel Lee's long and distinguished performance of duty represents significant achievement in the most cherished traditions of the United States Army, and reflects distinct credit upon herself, the Army Medical Service and the military establishment.

The President of the United States of America, authorized by Act of Congress July 20, 1942, has awarded the Legion of Merit to

Lieutenant Colonel Agnes P. Snyder, U S A

for exceptionally meritorious conduct in the performance of outstanding services:

Colonel Snyder, Army Medical Specialist Corps, distinguished herself by exceptionally meritorious conduct in the performance of outstanding service in successive positions of importance during the period October, 1949 to March, 1960. Colonel Snyder's excellent training and experience in both the professional and administrative aspects of her specialty were thoroughly utilized in planning and directing programs of instruction at the Army Medical Service School, Fort Sam Houston, Texas, from October, 1949 to January, 1954. As Technical Director of the Physical Therapy Department, she played a prominent role in the revision of the Physical Therapy Officer Course. Her many years of professional work in this field contributed



U.S. Army Photograph

Retirement Ceremony—Saluting as the colors pass the reviewing stand are Brig. Gen. James L. Snyder, Commandant, Army Medical Service School, and four persons retiring from active duty, including Col. Agnes P. Snyder.

immeasurably to the marked degree of success attained in the training of physical therapists and physical therapy technicians in the Army. While Chief, Physical Therapy Section, Walter Reed Medical Center from January to November, 1954, Colonel Snyder demonstrated outstanding skill in the practice and teaching of physical therapy. Her inspiring leadership, firm guidance, and broad understanding earned the respect and admiration of all her associates, and established excellent cooperative interdepartment relationships. Colonel Snyder served with similar distinction as Assistant Chief, Army Medical Specialist Corps and Chief, Physical Therapy Branch, Office of The Surgeon General from November, 1954 to September, 1958. She consistently displayed keen vision, and mature judgment in efforts to establish and maintain sound administrative policies. Colonel Snyder culminated her brilliant career as Chief, Physical Medicine Branch, Army Medical Service School, Fort Sam Houston, Texas. Her capabilities as an instructor were recognized by both her military colleagues and appropriate accreditation bodies in civilian medicine. Colonel Snyder's long and distinguished performance of duty represents significant achievement in the most cherished traditions of the United States Army, and reflects distinct credit upon herself, the Army Medical Service and the military establishment.

The President of the United States of America, authorized by Act of Congress July 20, 1942, has awarded the Legion of Merit to

Lieutenant Colonel Dorothy G. Tipton, U S A

for exceptionally meritorious conduct in the performance of outstanding services:

Colonel Tipton, Army Medical Specialist Corps, distinguished herself by exceptionally meritorious conduct in the performance of outstanding service in successive positions of importance during the period November, 1952 to March, 1960. Colonel Tipton served consecutively as Chief Physical Therapist, Tripler General Hospital; Chief, Physical Therapy Section, Martin Army Hospital; and Chief, Physical Therapy Section, Walter Reed General Hospital. In each position, Colonel Tipton demonstrated outstanding organizational ability, energetic leadership and professional skill. Under her able guidance, each physical therapy clinic which she directed became an efficient, smoothly functioning unit of the hospital. Her sound and expeditious methods of handling patient load, staff problems, and administrative details were thoroughly effective, and were markedly characteristic of each clinic which she supervised. Colonel Tipton was always alert to new improved methods of management, and in addition to her ability as an

administrator, she contributed materially to the professional growth and development of physical therapists on her staff. Recognized as an authority in many fields of physical therapy, her value as a professional consultant was enhanced by the fact that she never became so involved with the administration inherent in these key positions that she lost sight of individual patient needs. Her intense interest and active participation in patient treatment afforded her a keen insight into medical services for all patients, as well as those of the physical therapists. Physicians associated with Colonel Tipton were consistently laudatory in their appraisal of her skillful performance as a chief physical therapist. Colonel Tipton's long and distinguished performance of duty represents outstanding achievement in the most cherished traditions of the United States Army and reflects distinct credit upon herself, the Army Medical Service, and the military establishment.

Education

Schools Offering Courses in Physical Therapy

The listing of undergraduate programs which has appeared monthly in the *Review* will now be published four times a year in the March, June, September, and December issues. The listing last appeared in the March issue and will be published next in the June issue. Each month the issue in which the listing was most recently published will be identified in the Table of Contents under Regular Features.

Guide to Graduate Education

A list of suggested areas of graduate study and some universities offering this work, first published in the April 1960 *Review*, will hereafter appear four times annually in the issues of January, April, July and October. The listing and date of its most recent publication will be identified each month in the Table of Contents under Regular Features.

Member Honored by Hunter College

Vilma Evans, Chief Physical Therapist at St. Elizabeth's Hospital, Danville, Illinois, received The Hunter College Award for Outstanding Achievement on March 24, 1960, when awards were presented to the outstanding 10 members of the Class of 1950 by Dr. John Meng, President of Hunter College. The class, over 1,700 in number, was one of the largest in the history of the college.

The outstanding 10 of the Class of 1950 included several teachers and professors, writers, and scientists as well as the physical therapist, Miss Evans.

The awards were based on distinguished service in professional or business life, community service, homemaking, or any other form of service. The information was received by the selecting committee from questionnaires sent to the graduates in which they were asked to describe their participation in community services, awards, honors, and memberships in professional organizations.

Miss Evans received the certificate in physical therapy at the University of Pennsylvania in 1951 and has been an active member of the Association since her graduation. Presently she is serving as Vice Chairman of the Downstate District, Illinois Chapter.

Recipients of APTA-OVR Graduate Study Traineeships

In July, 1959, the Graduate Study Committee awarded APTA-OVR Graduate Study Traineeships for Physical Therapists to James Gray, Thelma Petty, Dorothy Pinkston, Mary Clyde Singleton, and Jo Ann Tomberlin. Since then, 10 other APTA members have also received them. Fields of study and the universities at which they are or will be located are varied:

Vermon Barney—Indiana University—D.P.E.—Physical Education
Mary Lou Boyd—Stanford University—M.A.—Physical Therapy
Fay Edsall—University of Florida—M.Ed.—Guidance
Irene Gilbert—University of California—M.A.—Anatomy
Alan Gordon—New York University—Ph.D.—Physical Education
John D. Gressett—Texas College of Arts and Industries—M.A. Guidance and Counseling
Sachiko Kaneko—State University of Iowa—Ph.D.—Physiology
Odile Montague—Boston University Sargent College—M.Ed. Counseling
Gordon Pocock—Stanford University—M.A.—Physical Therapy
Thelma Reeder—Stanford University—M.A.—Physical Therapy

From March 1, 1959 to March 1, 1960, there were 80 inquiries about the APTA-OVR Graduate Study Traineeships for Physical Therapists and the Graduate Study Committee reviewed 20 applications.

Members of the Graduate Study Committee are: Mildred Wood, Chairman, Alfred Szumski and Lois Wellock.

SHORT TERM COURSES FOR GRADUATE PHYSICAL THERAPISTS

Title of Course	*Sponsor of Course*	*For Details Contact*	*Dates of Course*
Cerebral Palsy	The North Carolina Cerebral Palsy Hospital Durham, North Carolina	Dr. Lenox D. Baker Medical Director No. Carolina C. P. Hosp. Durham, North Carolina	Courses arranged according to individual need—duration 3 months
Physical Therapy in the Care of Neuromuscular Disease	Georgia Warm Springs Foundation Warm Springs, Georgia	Robert L. Bennett, M.D. Medical Director Ga. Warm Springs Found. Warm Springs, Georgia	January April October
Technics of Neuromuscular Reeducation	California Rehabilitation Center Vallejo, California	Margaret Knott, Chief P. T. Calif. Rehab. Center Vallejo, Calif.	January 1 April 1 July 1 October 1
Functional Bracing of the Upper Extremities	U. of California and U. S. Office of Vocational Rehabilitation	Prosthetics Education Program Rm. B4-229, Medical Center University of California at Los Angeles 24, California	June 13—17, 1960
Upper Extremities Prosthetics	Postgraduate Medical School & College of Engineering New York University	Prosthetics Ed. Program New York University Postgrad. Medical School 550 First Avenue New York 16, N. Y.	May 31—June 10, 1960
The Third International Prosthetics Course (742 I)	Prosthetics Education, PGMS New York University in cooperation with the International Society for the Welfare of Cripples 550 First Avenue New York City	Dr. Sidney Fishman	August 15—26, 1960
Above-Knee Prosthetics	Northwestern U. and U. S. Office of Vocational Rehabilitation	Director of Prosthetic Education Northwestern U. Med School 401 E. Ohio St. Chicago 11, Illinois	June 20—24, 1960
P.T. 502-a—Anatomy for Therapists	University of So. California Physical Therapy Department University Park Los Angeles 7	Mrs. Roxie Morris Professor of Physical Therapy	August 1—26, 1960
P.T. 511 Neurophysiology in the Treatment of Neuromuscular Dysfunction	University of So. California Physical Therapy Department University Park Los Angeles 7	Margaret S. Rood Head	July 11—29, 1960
Cystic Fibrosis	Children's Hospital Medical Center 300 Longwood Avenue Boston 15	Shirley M. Cogland Director of Physical Therapy	June 6—10, 1960
Treatment for the Cerebral Palsied	Children's Rehabilitation Institute for Cerebral Palsy Reisterstown, Maryland	Christopher H. Wiemer Executive Director Children's Rehab. Inst. Reisterstown, Maryland	July 5—Sept. 16, 1960 Oct. 3—Dec. 16, 1960

APTA-OVR Graduate Study Traineeships for Physical Therapists

The Graduate Study Committee is thrilled to announce that the APTA-OVR Graduate Study Traineeships for Physical Therapists are to be continued. A grant has been received from the Office of Vocational Rehabilitation for the 1960-61 year.

July 1, 1960 has been designated as the deadline for applications from members who wish to begin full time graduate study at the beginning of the fall term. Information and application forms may be obtained from:

Department of Professional Education
American Physical Therapy Association
1790 Broadway
New York 19, New York

Abstracts

Physiology of Respiration in Newborn Infants and in the Respiratory Distress Syndrome

L. Stanley James (College of Physicians and Surgeons, Columbia University, New York), PEDIATRICS 24: 1069-1094, December 1959

To improve our understanding of the respiratory distress syndrome, the importance of early examination of the infant, preferably at delivery, cannot be overemphasized. An attempt should be made to estimate clinically the degree of birth asphyxiation by a method such as the Apgar Score. The nature of respirations as well as the rate should be noted, particularly retractions and grunting. Decreased response to stimuli or poor tone, and a low blood pressure, are significant signs.

In this review, a number of comparisons have been drawn, including evidence from adult medicine or animal experiments. While these may appear unrelated, irrelevant, or unduly speculative, they have been introduced for several purposes: to draw attention to aspects of the syndrome other than respiratory distress; to acquaint the general reader with more recent physiology which is deemed pertinent; and to emphasize the importance of relating one system to another, especially respiration to circulation.

Many of the studies of respiratory function point to cardiac as well as pulmonary failure, notably the need for oxygen in the presence of a normal tidal and increased minute volume. Other circumstantial evidence of cardiac failure is abundant.

Asphyxia appears to play a central role, affecting almost every system in the body and every phase of metabolism. It is probably responsible for the normal or low venous pressures occurring with a failing myocardium. It also accounts for the higher incidence of respiratory distress in the smaller premature infants who are unable to achieve and maintain normal lung expansion. The syndrome is uncommon in large full term infants and in these instances is associated with obstretrical complications causing more severe degrees of birth asphyxia.

The clinical picture includes a number of variations depending upon whether respiratory depression or symptoms relating to the central nervous or gastrointestinal systems predominate. Nevertheless, diagnosis of the respiratory distress syndrome should rely not on the presence or absence of membranes at necropsy, but rather on the history, symptoms, and clinical signs.

Inasmuch as asphyxia is not a disease, it would seem more logical to regard the syndrome as a failure in adaptation to extra-uterine life. Failure to comprehend the many adaptations which new-born infants must make, both cardiopulmonary and biochemical, together with a narrow view centering only around the hyaline membranes, have for many years cloaked this syndrome with mystery.

Physiologic measurements in sick infants are difficult, and many of the determinations and calculations arduous. Some of the studies require confirmation, and others remain to be done, employing new or improved technics which are free from disadvantages of older methods. Because of many variables, caution should be exercised in drawing conclusions from a small number of cases. Early pioneering work has contributed greatly and has paved the way for future investigations. The value of serial studies correlated with careful clinical observations in order that the precise nature of a dynamic process may be more fully revealed has been clearly shown.

Adductor Myotomy and Obturator Neurectomy for the Correction of Adduction Contracture of the Hip in Cerebral Palsy

Henry H. Banks and William T. Green (Department of Orthopedic Surgery, Children's Medical Center, Boston), J. BONE SURG., 42-A: 111-126, January 1960

Spasticity of the adductor muscles of the hip is a common disability in cerebral palsy. Adduction of the thighs and scissoring interfere with balance, gait, and nursing care. This study was made on 89 patients who were operated on to correct adduction contractures of the hip. The majority of the patients reported in this series received a variable but usually extended period of conservative treatment prior to surgery. This included active and passive exercise directed toward correcting the adduction, flexion and internal rotation of the hip. Emphasis was placed on development of active control of the hip, and in particular, of controlled abduction in gait. One hundred and seventy-five procedures were performed on these 89 patients. Of these procedures, 171 were adductor myotomies, all but 14 of which included neurectomy of the anterior branch of the obturator nerve. Adductor myotomy was performed as an open procedure in which the adductor longus, the adductor brevis, the gracilis, and frequently the anterior portion of the adductor magnus were divided.

According to this study, it was felt that this method of correction of adductor contracture of the hip in the spastic type of cerebral palsy has been as satisfactory as that of the correction of other deformities in this condition. Careful postoperative management was a major factor in the result. The recommended plan of postoperative care was as follows:

1. The patient was always immobilized after operation with the legs widely abducted.
2. Within one or two weeks after operation, active abduction and adduction exercises were begun. Particular emphasis was placed on the function of the abductors, and the other actions were gradually added.
3. As these muscles became more effective, they were made to work first against gravity, then against resistance, and finally, in stance.
4. Gentle stretching to maintain the various ranges of motion was added as indicated—not only the range of abduction, but also toward stretching whatever hip flexion, hamstring, heel-cord, or other contractures were present.
5. Approximately six to eight weeks after operation, standing was begun under supervision, at first with stable support and then with crutches. After good balance was established, gait training with crutches was started.

Clinical and Electromyographic Evaluation of Patients with Anterior Transposition of Peroneal Tendons

William H. Blodgett and S. J. Houtz (Detroit Orthopaedic Clinic, Detroit, Michigan), J. BONE SURG., 42-A: 59-76, January 1960

Transposition of one or both peroneal tendons to the dorsum of the foot has become an accepted orthopedic surgical procedure in an attempt to reestablish dynamic dorsiflexion of a drop-foot due to the residuals of poliomyelitis. Some of these patients have demonstrated progressive loss of strength of the transplant, recurrent heel-cord contracture, or persistent drop-foot gait,

even though good voluntary contraction of the transposed muscles was present before surgery. This led to the present study—to try to determine if the peroneal muscles, when placed in an antagonist position, function automatically during dorsiflexion of the foot when walking, and if this change in automatic function has any influence on the results of the operative procedure.

Electromyographic studies were performed on 9 patients with anterior peroneal transplants after poliomyelitis and 6 normal young women and one man. The muscles sampled were tibialis anterior, extensor digitorum longus, tibialis posterior, medial and lateral gastrocnemius, peroneus longus and brevis and flexor digitorum longus. Surface electrodes were used. The activities performed were free and resisted range of motion and walking.

Some of the conclusions supported by the results of the study are as follows:

1. Normal automatic walking is made possible by the activity of the leg muscles which function with split-second timing in relation to the swing and stance phases and the double-weight-bearing portion of the stance phase.

2. The normal phasic activity of the muscles of the leg is frequently lost when there are various degrees of paralysis due to poliomyelitis.

3. After anterior transposition of the peroneus longus, transfer of activity of this muscle from the usual stance phase to the swing phase may occur. In one patient, a progressive and complete transition of activity to the swing phase was demonstrated.

4. Further studies should be carried out concerning the mechanism by which the transfer of phase occurs in the peroneus longus muscle.

The Measurement of Spasticity

F. Torres, B. Sandler and T. De Torres (Unversity of Minnesota Medical School, Minneapolis, Minnesota), MINNESOTA M., 43:16-21, 47, January 1960

A quantitative evaluation of spasticity can be obtained by using cinematography to measure the time of fall of a leg from the horizontal to the vertical position. The frames of film exposed can be counted. The authors applied this method to the evaluation of a new drug, Trancopal, being used in patients with spasticity from multiple sclerosis. There was no significant difference in the effect on spasticity between the drug and a placebo.

Muscle strength and patellar tendon reflexes of the patients were clinically evaluated. A positive correlation was found between the spasticity measured by cinematography and the degree of hyperactivity of the tendon reflexes. There was a negative correlation between the former and clinically measured muscle power. According to these results, the more spastic a muscle is, the weaker it is.

Steroids in Rheumatoid Arthritis

Dwight Ensign, John Segler, and G. M. Wilson (Division of Arthritis, Henry Ford Hospital, Detroit, Michigan), A. M. A. ARCH. INT. M., 104: 949-958, December 1959

The dramatic suppression of symptoms by the adrenocortical steroids has made it tempting to substitute this form of therapy for all others. Steroid therapy should, however, correctly be considered "a part, not the whole, of comprehensive management" in rheumatoid arthritis.

Objectives of management include: 1) relief of symptoms; 2) improvement of general health; 3) prevention of crippling, so far as possible; 4) arrest of the activity of the disease; 5) improved function of damaged joints; 6) education and adjustment to irremediable residual.

The basic treatment program includes an initial period of hospitalization, proper and specific prescription of rest and analgesics (primarily acetylsalicylic acid), study and control of the over-all medical condition, and physical therapy. Intra-articular steroid injections and splints may be used for refractory joints. Proper orientation of the patient to this program, and the cyclic nature of his disease is essential for success.

The supplemental program of steroid therapy may be instituted if objective and subjective improvement is not evident in 6-12 weeks; if the disease is progressing rapidly; if the patient has economic responsibilities prohibiting prolonged absence from work; or if the patient is unable to participate adequately in the physical therapy program.

Despite careful regulation of dosage, undesirable effects may occur with prolonged use of any of the steroids. The so-called "iatrogenic Cushing's syndrome" with facial rounding, trunk obesity, wasting of extremities, osteoporosis, hirsuitism, and acne may develop. Profound cyclic fatigue, mood swings, and development of asymptomatic gastric ulcers are additional possible complications. A careful program of gradual withdrawal of steroids is then necessary. Supportive rest, medication, and therapeutic exercise are essential during this period, which may require six months to two years for completion.

Patients on Home Care: Their Characteristics and Experience

Franz Goldmann and Marta Fraenkel (Council of Jewish Federations and Welfare Funds, 729 Seventh Avenue, New York), J. CHRON. DIS., 2: 77-87, January 1960

To secure information on the characteristics of home care patients as a group and on the services they received, 155 patients on home care were observed for a period of a year and a half. All patients were under the care of one of three nonprofit general hospitals—Montefiore Hospital in New York City, The Jewish Hospital in St. Louis, and the Albert Einstein Medical Center in Philadelphia. All three hospitals provided the services of physicians, nurses, social workers, and physical therapists or occupational therapists. All patients were selected from the following diagnostic groups: (1) coronary occlusion, coronary insufficiency, myocardial infarction; (2) heart disease with cardiac decompensation, excluding conditions listed under (1); (3) diabetes with peripheral vascular disease, including infection or gangrene of an extremity; (4) intracerebral vascular accident; (5) malignant neoplasm; (6) pulmonary tuberculosis.

Findings on the characteristics of this group showed: 50 per cent were over 65 years of age, 59 per cent were women, 1 out of 13 was living alone, and most of these were in the over 65 group. Twenty per cent lived only with the spouse, while 70 per cent had other arrangements, usually with their children. Seven out of 10 were limited in physical ability, but not helpless; 2 out of 10 had no significant disability; and 1 out of 10 was completely dependent on others. Six out of 10 patients received service during the entire year and a half period of the study; 1 out of 5 was temporarily or definitely discharged during this period; however, 17 per cent of these had been seen for at least one year and almost 7 per cent for 2 years or longer. Readmission to a hospital

for intermediate treatment was necessary for 4 out of 10; and 10 per cent required four or more readmissions.

A study of services required by this group showed that those on continual care needed relatively the smallest amount; whereas the needs of those accepted for initial care were relatively the largest. Distribution of services showed visits by: (1) physicians who saw all patients an average of two to three times monthly; (2) nurses who saw 6 out of 10 patients, half of these patients four or more times monthly; (3) social workers who saw 8 out of 10 patients once a month or more; (4) physical therapists or occupational therapists who saw 5 out of 10 patients, many of them four or more times monthly.

The data presented indicate the type of program planning required if such services are to be offered by a community; and also emphasize the need for consideration of such additional services as a visiting housekeeper service for the large numbers of elderly patients living alone.

Transient Synovitis of the Hip Joint in Children

Alexander Spock (Geisinger Memorial Hospital and Foss Clinic, Danville, Pennsylvania), PEDIATRICS, 24:1042-1049, December 1959

A clinical review of 47 cases of transient synovitis of the hip joint occurring in patients less than 14 years of age is presented.

Evidence from clinical, bacteriologic, and serologic data is presented to show that in 4 patients acute streptococcal infection was associated with the development of transient synovitis. In one other patient clinical and serologic data disclosed a similar parallelism with an infection by the Coxsackie B virus. These findings suggest that these agents may be among those etiologically responsible for this syndrome.

An obese or stocky physique probably predisposes a child to this disease.

Patients with transient synovitis do not have any diagnostic abnormalities which can be detected by roentgenographic examination.

Prevention of weight bearing by bed rest until the patient is completely asymptomatic provides the best form of therapy, and failure to follow such treatment results in prolongation of the illness. Antibiotics do not appear to influence the course of the disease.

Three patients in this series developed Legg-Perthes disease within an interval of 3 to 17 months after convalescing from transient synovitis of the hip.

The Physiological Effects of Heat

Jay B. Moses (Medical Department, Eastman Kodak Company, Rochester, New York), INDUST. M. & S., 29: 20-23, January 1960

The body makes use of a highly complicated mechanism involving physical, chemical, and neurological factors to maintain optimum heat balance. Under conditions of comfort, this balance can be expressed as

$M \pm S - E \pm R \pm C = 0$ where

M = Metabolism (always positive)
S = Storage
E = Evaporation (always negative)
R = Radiation
C = Convection

For purposes of temperature determination the body can be divided into deep and peripheral regions. The deep temperature is nearly uniform, varying only about 1 degree C. at rest; the peripheral temperature is widely variable, ranging over 10 degrees C. It is the deep or core temperature that is the most critical. The heat regulatory mechanisms are all directed toward maintaining the relative constancy of the core temperature.

Under normal conditions heat production is balanced by loss of heat to the environment, and is maintained without sweating. An increase in the production of heat by muscular work must be balanced by an increase in heat loss through sweating and evaporation. The limit of evaporation is reached when the body surface becomes fully wetted. If the environment is such that the heat load exceeds the maximum evaporation capacity, deep body temperature starts to rise. At this point heat loss depends essentially upon the reactions of the autonomic nervous system.

The first factor brought about by neurological reactions is a dilatation of the blood vessels in the skin, and blood is diverted from the internal organs to the external surfaces, thereby increasing heat loss. The second factor is an increase in blood volume, brought about by dilution with fluid drawn into the circulation from skin, muscles, and liver, and by blood from the spleen. The third factor is an increase in circulation rate as a result of an increase in heart rate and minute volume.

The eccrine sweat glands play the primary role in the production of sweat. The average man has about 2,500,000 of these glands whose secretory action occurs when the skin temperature goes over 94 degrees F, or when blood temperature goes up 1 degree F. The efficiency of evaporation depends upon the relative humidity.

Chemical control is also very important in the regulation of temperature. This control is effected by the amount of combustion going on in the tissues. In moderate exercise total heat production rises to three times the basal level and 70-80 per cent of this heat is generated solely by peripheral muscles. The metabolic rate is also influenced by certain of the glands of internal secretion.

Heat exhaustion results from physical exertion in a hot environment when vasomotor control and cardiac output are inadequate to meet the needs of increased skin circulation, in addition to muscle and cerebral circulation. Dehydration and salt deficiency predisposes heat exhaustion.

Heat cramps are painful contractions of skeletal muscles usually seen in manual workers whose body fluids have been depleted of sodium chloride. The actual mechanism that causes heat cramps remains unexplained.

Heat stroke is a failure of adequate heat elimination almost always related to a breakdown of the sweating mechanism. It may occur whenever heat regulation depends on sweating for long periods of time. There is a complete breakdown of the temperature regulatory mechanism with cessation of sweating and extreme elevation of body temperature. The primary damage is edema of the central nervous system.

There is another reaction to heat called the psychophysiological. Marked emotional states increase body heat. Attitudes of resentment and antagonism tend to lower the threshold of perception of heat. A person's discomfort in heat may be affected more by the way he feels about heat than by the actual temperature.

The process of heat generation (metabolism) is chemical, and that of heat loss is physical; the complex physiological thermoregulatory mechanisms attempt to maintain an optimum balance between the two.

Some Aspects of Muscle Mechanics

F. G. St. Clair Strange (Canterbury, England), PROC. R. SOC. M., LOND., 52:897-899, November 1959

The most important function of the gluteus medius is not the abduction of the femur on the pelvis, but rather the reverse action of abduction of the mobile pelvis on the fixed femur. No amount of leg abduction exercise can adequately retrain weak glutei. The essential activities are reeducation in trunk carriage, in pelvic posture, and in walking itself. Surgical procedures should, as far as possible, avoid damage to the gluteal muscles.

The decelerating action of the tibialis anterior on the forefoot requires the exertion of a great deal of force. Recognition of this factor of muscle action helps in understanding the problem of reeducating a transplanted muscle. A tremendous amount of power is needed as well as a relearning of cerebral cortical control. In restoring function to a weakened tibialis anterior, resisted dorsiflexion has little to offer. A more satisfying form of activity might be the attempt to push a resistance away with the under surface of the heel.

Philosophy of Rehabilitation

Leonard F. Bender (Physical Medicine and Rehabilitation, Medical School University of Michigan, Ann Arbor), INDUST. M. & S., 29: 39-40, January 1960

The basic concern of rehabilitation is not with conferences and programs, not with professions and disciplines and not with technics and apparatus. The basic concern of rehabilitation is with people.

The purpose is to take damaged people and get them back into their proper place in society. Rehabilitation has been defined as restoring the impaired individual to his optimum place in society, physically, emotionally, socially, and vocationally. Physical restoration is a joint effort of many different people who play individual roles but in a joint fashion. All of the fields of medicine are utilized, but to a large extent physical medicine is the foundation of the whole program.

Motivation is the key to rehabilitation. The patients must feel that they have a place in society and that society wants them to have that place. The present attitude is to conserve human resources, to restore people to their optimum physical and mental status so that they will be active, contributing individuals in the community.

The Ruptured Disk Versus the Protruded Disk

Frank A. Palazzo (Department of Surgery, Neurosurgery Section, St. Louis University School of Medicine, St. Louis), SOUTH. M.J., 53:55-62, January 1960

The author describes the classification and analysis of 100 consecutive patients examined and operated upon by him for disk lesions. Only patients without previous surgical intervention have been included. Myelograms were done on all patients. No fusions were done.

The disk lesions found at operation fell into three main groups, (1) ruptured disk, (2) ruptured contained disk and, (3) protruded disk.

The details of the presenting symptoms and the findings on neurologic examination are compared in the three groups. On the whole, patients with ruptured disks or ruptured contained disks present clinical symptoms and signs of more severe degree than those with protruding disks. The clinical findings in patients with ruptured disk and those with ruptured contained disks are indistinguishable. The author contends that there is marked unreliability of the myelogram alone in deciding whether a disk is ruptured or protruded in patients who come to operation.

The percentage of ruptured and ruptured contained lesions is extremely high in this series. The author believes this high incidence is due to the insistence on performing an operation only on those patients who have had an ineffective response to conservative treatment and other criteria discussed.

It is believed from this study that too high an incidence of simple disk protrusions at operation indicates that too many patients are being operated upon who would have been adequately relieved with conservative treatment.

Abstracters for May

The Editorial Board of the *Review* is indebted to the following Association members for the carefully prepared abstracts in this issue.

Rachel Adams Miriam Partridge
Jean Cuthbertson Nancy Watts
Geraldine Midgley Virginia Wirtz

Book Reviews . . . . .

Gray's Anatomy. *By Henry Gray, F.R.S., Late Fellow of the Royal College of Surgeons; Lecturer on Anatomy at St. George's Hospital Medical School, London. Edited by Charles Mayo Goss, M.D., Managing Editor of the Anatomical Record; Professor of Anatomy, Louisiana State University School of Medicine, New Orleans. Ed. 27, Cloth; price $17.50. Pp. 1458; illus. Lea & Febiger, Philadelphia, 1959.*

In this age of meaningful and meaningless statistics, it would be interesting if one could quote the number of physicians and members of allied professions whose careers were begun when they first opened Gray's Anatomy. Over a span of one hundred years, the figure has certainly reached a magnificent total. This centennial edition will be a representation of these generations of students for whom this book was the first open door to knowledge of the human body.

This edition will also stand as a tribute to the genius of Henry Gray whose original work still comprises the major text and to his associate, Dr. H. Van Dyke Carter who was largely responsible for the illustrations. Although 27 editions and the passing of 100 years have created additions, corrections, and adjustments of the contents, it is the basic lack of change that is most intriguing. The care and deliberation of Gray's original dissections, the thoughtful selection of material, and the uncanny foresight of arrangement are still evident today.

Being a special edition, the publishers have made a special effort in the physical aspects of this book. The binding is heavier than usual and of a particular beauty. No special changes have been made in the type or illustrations except the addition of pertinent new material.

Specific revisions include a simplification and slight reduction in length of the chapter on the nervous system. The material on the cardiovascular system has been divided into chapters on the heart, arteries and veins and the material on the heart contains much new material and illustrations.

Little need be said for the value of this text as a study and teaching aid. It is certainly not a new addition to our knowledge and earlier editions will still continue to be useful. But this centennial edition is highly recommended for its historical, esthetic, and functional value.

Orthopaedics: Principles and Their Application. *By Samuel L. Turek, M.D., Attending Orthopaedic Surgeon, Weiss Memorial Hospital; Associate Attending Orthopaedic Surgeon, Mount Sinai Hospital; Instructor, Department of Orthopaedic Surgery, Northwestern University Medical School. Cloth; price $22.50. Pp. 906; illus. J. B. Lippincott Co., Philadelphia, 1959.*

This orthopedic text presents, for the first time, a close correlation of the basic sciences with clinical application. The first part covers embryology, histology, physiology, and histopathology of bone. This portion is written in a clear, concise manner with a number of attractive illustrations. An attempt is made at all times to correlate normal and abnormal physiology. Part two deals with most of the common and a good many of the less common orthopedic conditions customarily covered in text of this type. The material is organized to facilitate an over-all broad understanding of various categories of orthopedic conditions. Considerable space is given to conditions not customarily covered in an orthopedic text such as peripheral vascular and neurological diseases. A third part of the text is organized by regions. The introduction to each anatomical region contains a concise comprehensive discussion of the basic structural and functional anatomy of the part under discussion. A fourth part deals briefly with the use of radioactive isotopes in orthopedics and some aspects of amputation.

The text is attractive to read, contains many original diagrams, as well as some old familiar ones including some of F. H. Netter's illustrations.

Obviously, a textbook dealing with the principles and applications of orthopedic conditions will contain much detailed technical information not necessarily of direct usefulness to the physical therapist. However, the over-all approach is unique, stimulating, and informative. It is somewhat regrettable that physical therapeutic measures are given a minimum of consideration and in some instances where exercises are given in detail, it appears that the material was not given serious reevaluation as to its accurateness.

The bibliography, though quite extensive, does not always include most recent additions. The size and price of this text is not likely to make it practical as a textbook for a student, but it may be a very welcome addition to any physical therapy department which is searching for a comprehensive text that will make readily available information in regard to the medical aspects of orthopedic conditions.

Anatomy of the Human Body. *By R. D. Lockhart, M.D., CH.M., F.R.S.E., F.S.A. (Scot.), Regius Professor of Anatomy, Aberdeen University; G. F. Hamilton, M.B., CH.B., F.S.A. (Scot.), Senior Lecturer in Anatomy, Aberdeen University; and F. W. Fyfe, M.B., CH.B., Associate Professor of Anatomy, Dalhousie University, Halifax, Nova Scotia. Cloth; price $13.50. Pp. 697; illus. J. B. Lippincott Co., Philadelphia, 1959.*

With 697 pages and 965 illustrations the authors of this new textbook have done an excellent job of describing the anatomy of the human body. Following a systematic approach they have reduced the text to a concise pithy minimum which is still quite comprehensive. Considerable space saving has been accomplished with long complex sentences filled with adjectival phrases commonly lacking the article "the" in places where it is usually expected. On the other hand, the division of the page into two columns, adequate use of bold type, and good textual organization offset the disadvantage of the concentrated text.

Although apparently striving for brevity, the authors have not failed to include adequate generalities, radiographic and clinical applications, and some surface anatomy, presenting all this in a scholarly and stimulating fashion. Pleasant innovations are the incorporation of joint description into the chapter on bones, and surface anatomy into the account of muscles and fasciae.

To this reviewer the most impressive part of the book is the chapter on the nervous system which accounts for almost one third of the book's length. In describing the peripheral nerves the authors have uniquely intermingled the text and the illustrations using leaders from the textual names to the illustrated structures. This makes for a crowded looking page, but does urge (almost force) the reader to follow text and illustration simultaneously. It also saves space. This chapter, like the entire book, is abundantly supplied with excellent figures most in multicolors. The account of the central nervous system is both original and good. Excellent longitudinal stereoscopic views of nerve tracts and nuclei will be heartily welcomed by the student. The functional parts of the text are quite up to date.

The authors assume, according to current practice, that the student will utilize separate textbooks for histology and embryology, hence these are only covered where they have specific application to an understanding of the gross specimen.

The book is handsomely put together and students will find it invitingly pleasant to use. It should find wide usage in anatomy courses for physical therapists.

Arthritis — General Principles, Physical Medicine, Rehabilitation. *Edited by Edward W. Lowman, M.D. (with 24 collaborators), Associate Professor of Physical Medicine and Rehabilitation, New York University, College of Medicine; Clinical Director, Institute of Physical Medicine and Rehabilitation of New York University–Bellevue Medical Center. Cloth; price $9.50. Pp. 300; illus. Little, Brown & Co., Boston, 1959.*

Arthritis is becoming more and more of a consideration in the field of medicine because of the lengthening of man's life span. With this increase in life span comes the development of chronic diseases and the degenerative diseases of aging.

This text ably presents the problems of the patient with arthritis as well as the medical problems arising in dealing with arthritis. Twenty-four collaborators contribute informative articles discussing the disease process itself and the problems the arthritic is faced with in maintaining a functioning position in our society.

One out of every 10 persons over 14 years is affected with some form of arthritis or rheumatism, and more than 50 per cent of the instances of crippling involve persons under 45 years of age. The socioeconomic significance of this situation is readily apparent.

Part One of the book, entitled Arthritis—General Features, states

that the term arthritis means inflammation of a joint. There are probably more than a hundred different causes of arthritis or rheumatism. In order of frequency of occurrence, rheumatoid arthritis accounts for 30 to 40 per cent of cases, degenerative joint disease for 25 to 30 per cent and nonarticular rheumatism for 10 to 20 per cent; these three groups alone comprise at least two thirds of all cases.

Rheumatoid arthritis is a disease of unknown cause and is more prevalent in women. Early joint findings are inflammation, swelling, heat, tenderness, and sometimes redness. The hands are frequently the first to show these signs. The speed at which the disease progresses is unpredictable, but there is a progressive extension of joint inflammation. The course of the disease is marked with exacerbation and remissions and a good 80 per cent learn to live within the limitations brought on by their illness.

Osteoarthritis is a joint disorder characterized by a wearing out of its components, particularly the cartilage between two bones making up a joint, and the ligamentous and fibrous tissue structures supporting the joint. It is probable that almost every subject seen who is over 45 years of age will have osteoarthritis in some area of the body. The degree of arthritis, as well as the number of patients who complain of symptoms, increases in direct relationship to aging.

In part two of this book, entitled "Physical Medicine and Rehabilitation Treatment of Arthritis," there are informative articles on range of motion testing, therapeutic exercises, gait training and prescription for crutches, activities of daily living, wheel chair prescription, self-help devices, shoes and shoe correction, and many other subjects of interest to the therapist engaged in treating the arthritic. The social and psychological problems of the arthritic in regard to society as a whole are also discussed.

Arthritis is recommended without reservation to all physical therapists and others working in this field. The subject content of the book is excellent. Each collaborator presents a well organized and detailed discussion of his particular specialty pertaining to the arthritic. The fact that each writes in a clear, concise style adds much to the book's readability. Also, it is more rewarding to have a group of qualified persons presenting ideas on various subjects than to have one author cover all the topics.

The book will be an asset to the library of a physical therapist or any other person concerned in the treatment of the arthritic patient.

Lehrbuch der Krankengymnastik. *Herausgegeben von Prof. Dr. K. Lindemann, Heidelberg; Dr. H. Teirich-Leube, Freiburg i. Br., Dr. W. Heipertz, Bad Kreuznach. Band I. 328 Seiten, 222 Abb. George Thieme Verlag, Stuttgart. DM 32, 1959.*

This is the first of a four volume *Textbook of Medical Gymnastics.* It is pointed out in the introduction that the term "medical gymnastics (krankengymnastik)" stands for "physical therapy" in English speaking countries and "kinesitherpie" in French speaking countries. It is also stated that such a textbook which would contain "all the necessary basic knowledge that a physical therapist needs to have" would fill a badly felt gap.

One may wonder: can such a comprehensive textbook take the place of a variety of textbooks and publications, each one a well known and accepted work in its special field?

This to decide is even more difficult in a case where only the first of the four volumes is available. Therefore, the reviewer feels that for the moment one can only give a short summary of the contents of the present volume; a more thorough evaluation of the scope, organization, and usefulness of this work will have to be postponed until all four volumes are available.

In the interesting chapter "History of Medical Gymnastics" it is explained in detail how many valuable contributions to medical treatment, various systems of gymnastics have made throughout the ages from ancient times to the present. "Medical Gymnastics has as its goal, through various forms of movement to return a sick organism to its original capacity." This statement sets the theme for the whole volume.

Various forms of exercises are analyzed in regard to their purpose and physiological effect. "Relaxing exercises" make use of gravity to move an extremity through the range of motion; "loosening exercises" also are mostly of the pendulum type, while "stretching exercises" employ momentum and force to pull and push the body into stretch positions. Strengthening occurs through "dynamic motion" such as pushing, boxing, and other vigorous activities, when sudden contractions against maximal load are obtained. "Holding exercises" are static—the total muscle mass of a part of the body contracts simultaneously and holds the body—or part of it—in a given position for a short period of time. "Total movements" are those in which the whole body is in motion, such as in running, hopping, dancing, and rhythmic activities. All these forms of exercise are well described and discussed. In other parts of the book one finds an excellent and detailed analysis of the physiological change brought about by such activities. This should be helpful whenever one has to select the best physical activity for a normal or handicapped person.

While emphasizing these "general gymnastics," the authors have by no means neglected to stress the importance of selected and specialized exercises for a number of disabilities and diseases. In the chapters "Basis of Medical Gymnastics" and "Basic Technics of Medical Gymnastics" they offer valuable discussions of pathological processes occurring in tissue, bone, and muscle; they also analyze types of exercises which are expected to correct most effectively these abnormalities.

Since the present material is primarily concerned with theoretical aspects, it will be interesting to see what application of these principles will be suggested for the treatment of specific disabilities in the volumes which are to follow. According to the publisher's announcement, the next three volumes will deal with physical therapy in the orthopedic, neurologic, psychiatric, and other areas.

A short chapter on pool therapy deals with the fundamental aspects of underwater exercise. It does not offer any new concepts and ideas. Perhaps volume 3 will bring more interesting material on hydrotherapy; it will contain a chapter on balneotherapy extensively used in European countries. Electrotherapy, too, will be covered in that chapter and one can look forward with interest to a comparison of European and American methods.

As was to be expected, one of the best contributions is the chapter on massage, written by Dr. Teirich-Leube, Europe's outstanding expert in this field, who is well known as teacher and author in the specialized field of "Bindegewebe-Massage" (Deep Tissue Massage). Her present chapter is not based on one special method of massage such as Hoffa's or others known in this country. It comprises many of the "classic" technics known here. It provides ample information to supplement our knowledge of the physio-

logical processes resulting from lesser known manipulations such as shaking, rolling, vibrating, and many forms of clapping, hacking, and pounding, all used for a variety of therapeutic purposes.

It is worth noting that "Bindegewebe-Massage" is not included in Dr. Teirich-Leube's chapter. As she puts it, "the training in this specialized method of massage cannot be acquired through study of the literature without thorough practical instruction by a trained teacher." With this, few will disagree. But one wonders whether this is not equally true for the massage Dr. Teirich-Leube describes so well in her chapter. One might also mention in passing that Dr. Leube is the author of a very good textbook on "Bindegewebe-Massage." At least a short discussion of the subject would have been valuable in this book, too.

Reading this well illustrated and thoroughly prepared book one also feels that it would have been more helpful to the student to have the basic instruction in anatomy (to be the subject of volume II) before tackling principles of treatment in volume I.

Finally, one must regret that almost all contributors give only the names of the authors whose studies they have used for documentation. Titles or publishers of such studies are not mentioned in the text; nor is there an index of authors. This makes it rather difficult for a reader to find source material and to carry his study beyond the present volume.

Book Reviewers for May

C. Murphy Combs, Ph.D., Associate Professor of Anatomy, Northwestern Medical School, Chicago.

Gloria Hirschberger, Physical Therapist, City-County Clinic, Johnstown, Pennsylvania.

Susanne Hirt, Director, School of Physical Therapy, Medical College of Virginia, Richmond.

Eleanor J. Carlin, Associate Professor and Assistant Director, Division of Physical Therapy, School of Allied Medical Professions, University of Pennsylvania, Philadelphia.

Elizabeth Zausmer, Assistant Technical Director, Physical Therapy Department, Children's Medical Center, Boston; Instructor, Simmons College.

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Ankylosing spondylitis
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NOTE: Suggestions for preparation of case reports were published in the October, 1957, issue of the *Review*, pages 666-667. Reprints of the suggestions may be requested by writing to the *Physical Therapy Review*.

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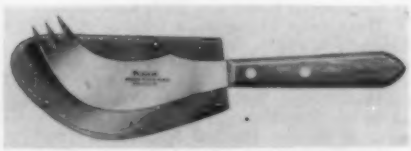

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OPENING for STAFF PHYSICAL THERAPIST in 350 bed hospital. Salary commensurate with experience. Liberal personnel policies. For complete information contact Charles Peterson, Chief Physical Therapist, Rex Hospital, Raleigh, N. C.

Positions Available

REG. PHYSICAL THERAPIST: New air-conditioned C.P. outpatient clinic supervised by physiatrist; 40-hr. 5 dy. wk. 3 wk. rest period; 13 holidays. Starting salary for inexp. therapist $4200. Write Adm. Les Passees Center, 49 N. Dunlap, Memphis, Tennessee.

URGENTLY NEEDED: Physical Therapist for the Orthopedic Dept. of the Public Schools; $5000.00 salary, sick leave, and other benefits. Please write and inquire from: Hugh H. Holloway, Superintendent of Public Schools, Sault Ste. Marie, Michigan.

QUALIFIED PHYSICAL THERAPIST (two) for outpatient cerebral palsy treatment center. Starting salary $4550 per year. Two months vacation, liberal sick leave benefits. Liberal personnel policy. Contact Robert Schlitt, Director, Peninsula Cerebral Palsy Training Center, 901-24th Street, Newport News, Virginia.

OPPORTUNITIES for staff physical therapists in 500-bed teaching hospital. Department treats a wide variety of cases—both inpatients and outpatients. Pleasant University community located in foothills of the Blue Ridge mountains. Good working conditions and liberal benefits. Contact: Personnel Office, University of Virginia, 1416 West Main Street, Charlottesville, Virginia.

SOUTHERN NEW ENGLAND—STAFF POSITIONS. Registered physical therapists for expanding physical medicine department under full time personal direction of qualified doctor of physical medicine. Opportunity to participate in development of modern, progressive rehabilitation program in 680-bed voluntary general hospital serving metropolitan area. Modern personnel practices and salary scale. Write Personnel Department, Rhode Island Hospital, Providence 3, R. I.

ASSISTANT CHIEF PHYSICAL THERAPIST: Immediate vacancy in this modern 500-bed general nonprofit hospital. Male or female. Five-day week, paid vacation, paid sick leave, progressive wage scale. Salary "Open"; this hospital is the medical center of its community. Apply: Mr. Paul Kroh, Chief Physical Therapist, Aultman Hospital, Canton, Ohio.

PHYSICAL THERAPIST who enjoys working with children. Here is an opportunity to head the Physical Therapy Department of 214-bed children's hospital and work with an excellent orthopedic staff. The Department will move into new quarters during 1960. For further information, write Edward J. Logan, Administrator, Milwaukee Children's Hospital, 1700 W. Wisconsin Ave., Milwaukee 3, Wis.

PHYSICAL THERAPIST: Immediate opening in a large progressive department in a 1000-bed general hospital offering a variety of experience in treatment of patients: 40-hour week, 3 weeks vacation, minimal salary $4,488. Apply to Dr. E. E. Gordon, Director of Physical Medicine and Rehabilitation, Michael Reese Hospital, 29th & Ellis, Chicago, Ill.

IMMEDIATE OPENING: Experienced Registered Physical Therapist (Male) for modern industrial Medical Department. Starting salary $6,500, paid vacation, holidays, hospital-surgical-life insurance, retirement, generous sick leave, plus other benefits. Apply to Dr. E. L. Rohlf, Medical Director, The Rath Packing Company, Waterloo, Iowa.

IMMEDIATE OPPORTUNITIES: for Physical Therapists who would like to work with handicapped children attending public schools in pleasant San Diego County communities. Experience preferred but not required. Competent supervision given. For details write to County Personnel, 403 Civic Center, San Diego 1, Calif.

OPENING for a qualified female physical therapist in fully-equipped orthopedic surgeon's therapy department. Therapist to be in charge of department, working alone with children and adults, under doctor's supervision. Salary open. Contact Dr. Dale C. Bouton, 261 Liberty St., Newburgh, N. Y.

PHYSICAL THERAPISTS: For general hospital near N.Y.C. Affiliated residency N.Y.U.-Bellevue, active physical medicine and rehabilitation program. Must be eligible for registration in N.Y. State. Liberal benefits. Start $4420 with yearly increments of $290 to $5290. Contact Personnel Supervisor, Grasslands Hospital, Valhalla, N.Y. LY 2-8500, Ext. 61.

SILVER SPRING, MARYLAND. Physical therapist to work with cerebral palsied children in private certified school adjacent to Washington, D.C. Salary commensurate with experience. Mondays, Wednesdays and Fridays. Social Security; legal and all school holidays, sick leave. Address United Cerebral Palsy Center, Jesup Blair Park, Georgia Avenue and Blair Road, Silver Spring, Md.

NURSE PHYSICAL THERAPIST to work with staff of 12 RN's in rehabilitation of homebound patient. Minimum one year supervised experience; 5-day, 40-hour week, 4 weeks vacation, sick leave, holidays, retirement plan. Apply: Visiting Nurse Association, 20 Maple Street, Springfield 3, Massachusetts.

WANTED: Male or female physical therapist for 500-bed general hospital, active department, recent graduate preferred. Good starting salary, fringe benefits, ten paid holidays. Apply: D. A. Donio, M.D., Sacred Heart Hospital, Allentown, Pa., Director of Department of Physical Medicine and Rehabilitation.

STAFF PHYSICAL THERAPIST: State Crippled Childrens Program, P.T. Clinics held in various health departments. Merit system status, retirement benefits, liberal vacation and sick leave. Salary range $4512-5640. Travel expenses paid. Responsible, challenging and secure position. Write: Director of Personnel, State Health Department, Richmond, Virginia.

IMMEDIATE OPENING for physical therapist (female) for Barney Convalescent (Children's) Hospital. Pleasant working conditions in new well equipped building. Salary open. Apply: Director, Barney Convalescent Hospital, 1735 Chapel Street, Dayton 4, Ohio.

WANTED: PHYSICAL THERAPIST, registered, for general hospital located in coastal resort area. Good opportunity and working conditions. Salary open. Write to Director, James Walker Memorial Hospital, Wilmington, N. C.

WANTED: Qualified female physical therapist for well equipped department in a modern 350-bed general hospital. Paid vacation, sick leave, 6 holidays, salary open. Apply L. E. Thompson, Personnel Director, St. Rita's Hospital, Lima, Ohio.

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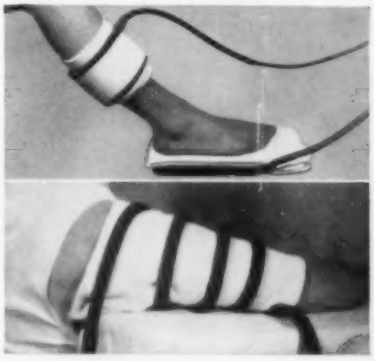

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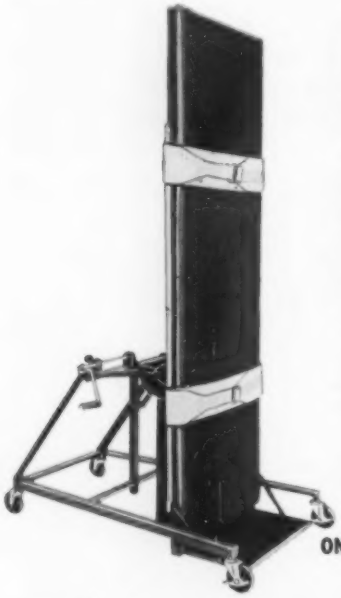
This newly developed Standing and Treatment Table is manually operated by means of a hand crank. The sturdy base, constructed of angle iron, has a brown enamel crinkle-finish. The table top is 24″ wide; 78″ long; 32″ high, and is upholstered with durable waterproof leatherette.



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EASE OF OPERATION—A special worm and gear arrangement permits tilting the table with minimum effort. The crank handle is near the top, obviating the need for the therapist's bending.

TILTS FROM HORIZONTAL TO VERTICAL position (from 0—90 degrees). Locks automatically at any desired angle.

EASY PASSAGE through narrow doorways and corridors. Over-all width held down to 29″.

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